

COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER AND R. DAWSON HALL, *Editors.*

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Survey Needs More Money for Coal Reports

WITH a period of car shortage of more or less—we hope less—severity impending, the word that the Geological Survey will soon find it necessary by reason of lack of money to discontinue that part of its weekly report covering working conditions at the mines and time lost because of car shortage, strikes, no market, etc., has caused dismay among coal producers. So much a part of the tools of the trade has this feature of the weekly report become, and so thoroughly established as the best, even though not a perfect measure of conditions, that we cannot get along without it.

The Survey is asking for more money—a larger appropriation—to sustain this feature of its work on coal and coke statistics. There should be no delay in the gaining of assurance that there will be no suspension of this valuable service. Once before these reports were saved by private support, when for one year the National Coal Association paid the salaries of four clerks to carry on the work. This time the reports will stop unless Congress can be induced to put up more money.

A Thorny Path Confronts the Coal Industry

CONTEMPLATE for a moment the hurdles before the coal industry. We are prone to think that the past five years have carried enough of trouble and dismay for any man, but the end is not yet. The old world is not yet shaken down for a period of peace and prosperity and to the coal industry remain the hardest jumps of all.

Three obstacles intervene to keep the coal men on edge between now and next summer, and at each one is waiting an eager element in Congress and in the country to catch the struggling industry should it stumble. The possibility of railroad strikes, the Borderland suit before Judge Anderson in Indianapolis and a suspension of coal mining next April are the hurdles and the Kenyon and Frelinghuysen bills are the traps to catch the unwary.

Senator Kenyon is understood to have introduced his two coal regulatory bills a few weeks ago with no idea of forcing their immediate consideration. He desires only to have them ready for an "emergency," subject to call when the occasion demands. A Congress that buried the Calder and Frelinghuysen bills would give scant consideration to Senator Kenyon's proposals under normal conditions. But can anyone foretell what might be the attitude of a majority of Congress if there were a serious shortage, inordinately high prices for coal and the country in an uproar?

Perhaps something of this was in the mind of Major Coyle, president of the American Wholesale Coal Association, when he sent a message to his members a few days ago as follows: "Bearing in mind the deplorable results of Oct. 31, 1919—results from which the nation

has not yet recovered—we recommend, through the directors, to the membership of this association that in this or any other emergency which may arise we put aside immediate profit in favor of completing business now in hand. Let no charge of boosting prices be brought against our membership. Let each man keep his own house in order and thus defeat any radical demand for government muddling."

Equally sound and, we suppose, warranted was his request to the National Association of Purchasing Agents "that you co-operate in keeping a cool head and a steady hand in whatever crisis may develop in transportation. It is to the interest of all concerned that trade be kept in its normal channel, that your purchases be made only from persons of known responsibility and that no condition shall arise through you or us which might give to the more radical element any color of excuse to repeat the errors of two years ago."

The burden of these utterances, of course, is: "Don't run the price up." To which we would add: Be careful of the prices on domestic coal—hard or soft. Lump and prepared sizes of bituminous coal are high enough now; it is the steam grades that are obviously in line for advances. But two weeks ago screenings in Illinois were sold as low as 75c., and 85c. was a common figure. No one who bought this coal at such figures but knew it was well below cost of production. Like the hard-coal operators, a majority of the operations in Illinois and other Western fields have seasons when fine coal has no market and must be treated as a byproduct of the preparation of domestic sizes, from which it is screened. The recent flurry caused by the prospects of a railroad strike sent prices of screenings up a dollar a ton, but domestic lump and prepared sizes were held steady. We may safely expect and consider warranted gains in prices of steam coals in all markets as the winter advances and as the demand becomes stronger.

Should Judge Anderson, of Indianapolis, decide that the contention of the Borderland Coal Co. and other coal companies in the non-union field on the Norfolk & Western in southern West Virginia, that there exists a conspiracy between the union operators in Indiana and the union miners—a conspiracy, of which the check-off is an evidence—to forcibly organize these fields, and should he order discontinuance of the check-off, then we may expect almost any kind of a protest from the United Mine Workers. Such a decision, of course, is possible, and serious difficulty might flow from it. A court order restraining the operators in the Central Competitive field from collecting the check-off, in the opinion of many, might cause organized resistance from the miners affected, and result in the suspension of mining. Should this occur and be sustained for any period, a shortage of coal would certainly develop in many sections and at many plants and homes. An "emergency" might thus be precipitated.

One of the features of the Kenyon bills is a provision

for taking over the coal industry by the government in the event of a national emergency such as would be caused by a strike of the magnitude of that of 1919. Such a strike is in prospect next April. The union leaders have signified in no uncertain terms their opposition to a reduction in wages. It is patent to all that the cost of coal must come down in company with other basic commodities, and that the cost cannot be substantially reduced until wages are lowered. A conflict is inevitable, with an anticipatory period during which demand for storage coal may become sufficiently strong to upset the market and precipitate inordinately high prices—that is, cause profiteering. Another opportunity for the declaration of an emergency.

The logical way to forestall such possibilities is to sell enough coal now and in the ensuing months, and thus to so stock the country that suspension of mining operations would lose their force in causing trouble. It is idle to expect that every seller of coal will so restrain himself in times of stress as to not ask or accept more than reasonable prices for his coal.

We do not believe that steam-coal buyers and consumers are one whit less concerned with keeping the coal business free from government control and regulation, and thus on a freely competitive basis, than are the coal producers and distributors. Their part in retaining the business on an even keel through impending difficulties is to keep sufficient stocks on hand each to insure against shortage during possible interruptions of several months.

Wages and Salaries

NOTHING is so conducive to amicable adjustments of disputes as full appreciation of the other fellow's viewpoint. Argument on the railroad labor wage question points to some of the tactics that will be indulged in next spring when coal miners and operators begin to negotiate a new wage scale.

To all those in the coal industry who are going to be on the side asking the day laborer and miner to accept a reduction we pass on a thought found outcropping here and there among managers. It is simply this: Be you operator, owner or stockholder, president, manager, or other coal company executive, mine superintendent or just plain boss, have you faced the issue squarely—the issue of a reduction in wages, for union labor and for you?

Salaries kept pace with wages in the prosperous times; they must follow downward in the period of deflation. The idea is not new; for months past companies large and small, here and there, have been reducing costs by reducing the salaries of office force, though denied the opportunity of reducing union miners' wages. Along with non-organized mines, the non-union salaried personnel of the coal companies are accepting the inevitable. In some areas this deflation of salaries is yet to come. The East has led here, large companies in eastern and western Pennsylvania having been among the first to show their union miners that they are willing to take what they ask the miner to accept in lowered income. Some parts of the West have yet to face this trying ordeal. In these fields things are so well organized that many of the officer class have not thought in terms of what a wage reduction next spring is certain to mean to them.

Nor has this unpleasant matter confronted only the operator and miner. The owners of the mines and the

stockholders in coal companies have long since felt the pinch of hard times. Few coal companies have paid dividends this year; the average company has lost money and none but the fortunate has prospered and profited.

When the time comes early next year to discuss with the union miners a wage reduction those who so far have suffered no diminution in these never-to-be-forgotten salaries—salaries warranted under such conditions as obtained in 1920, but subject to deflation as well—must graciously step down with the rest. Deflation is unpleasant. It will be easier to understand and sympathize with the aspirations of the miner for a continuance of his wage and his resistance to a cut when you are contemplating or have experienced a reduction in yours.

A Timely Canvass of Coal Stocks

A SURVEY of stocks of coal in the hands of consumers as of Nov. 1 is to be conducted by the Department of Commerce and the Geological Survey. This is indeed fortunate, for lack of this information since the canvass of last April has led to all sorts of speculation in regard to our position with respect to supplies, needs and rate of consumption. Three years ago at this time stocks of bituminous coal in the hands of consumers were some 63,000,000 tons. The quantity now may possibly not exceed one-third that figure. The important thing is to find out just what it is and the corresponding rate of consumption. If there is a comfortable supply of coal above ground, well and good; if not, then knowing how we stand will assist the country in deciding what course to follow in December and the months before the possible suspension of mining in April.

The Survey bases its estimates of stocks on reports from some 5,000 consumers of coal, who have generously responded to each call for data during the past three years. We can but point out that as consumers they have as much at stake in the collection and dissemination of reliable reports of stocks of coal as anyone. Every consumer receiving a questionnaire should fill it out promptly, for the final report is valuable only as it is timely.

E. M. POSTON, PRESIDENT of the New York Coal Co., of Columbus, Ohio, and E. E. Clark, who was a member of the 1902 Anthracite Coal Commission, have been appointed by Secretary Hoover as members of a permanent committee of fourteen for the Unemployment Conference.

THE BUREAU OF MINES has completed arrangements for investigation of kiln processes, to be conducted at the Columbus, Ohio, station. The object will be to produce fuel economies in the burning processes.

SECRETARY OF INTERIOR FALL will shortly make a Western trip of inspection, giving special attention to mining, more particularly observing the field administration of the mineral- and coal-leasing law.

THE GEOLOGICAL SURVEY reports a disinclination on the part of some coal operators to furnish data in connection with unemployment to be compiled by the Department of Labor on the ground that it will be the first of a series of requests for information which may follow.

THE THING LABOR UNIONS throughout the world seem to be unable to see is how hire ever can be lower. — *Manila Bulletin*.

Heat from Steam Pipe of Pump Ignites Coal in Slope at Springhill, Nova Scotia; How Fire Is Extinguished*

Prop Ignited Spontaneously, Setting Coal Afire, and Mine Was Sealed — In Reopening, Slopes Were Cleared by Sections, Which Were Opened as Analyses Showed This Was Expedient

By J. C. NICHOLSON
New Waterford, N. S.

ON NOV. 26, 1916, a serious fire occurred in the pipe slope of No. 3 mine, at Springhill, N. S., 1,050 ft. from the surface. This pipe slope was used mainly for pumping purposes, an 8-in. steam line extending down it from the surface to a large pump at the 3,200-ft. level. The temperature in this slope was high because pumping had to be carried on continuously to cope with the large amount of water encountered. All the timber and fine coal in this slope was extremely dry, and the difficulty to be expected in extinguishing a fire that had gained appreciable headway can be better imagined than described.

An attempt was made to seal off this slope and confine the fire to a small area, but on account of the intense heat and the nature of the roof it was found impossible to build stoppings tight enough to be effective. A pipe line was then put in from the surface and an effort made to extinguish the fire with water. This method was found to be ineffective, as the fire had gained considerable headway before the water was turned onto it.

FOUGHT FIRE THREE DAYS WITHOUT SEALING

After fighting the fire for three days it was decided to seal up all mine openings at the surface. Soon after this was done a slight explosion occurred which blew out the stoppings in the main slope, as well as in the pipe slope. Without delay heavy stoppings of plank covered with clay to a total thickness of 6 ft. were built across the slopes. A 1½-in. pipe was put through each stopping for the purpose of getting samples of the air from behind it. The first analysis of air was made on Dec. 2, four days after sealing up. The results obtained are given in Table I.

TABLE I. ANALYSIS OF ATMOSPHERE, PRESSURE AND TEMPERATURE IN SEALED FAN SLOPE

Gases	Percentage	Barometer	Thermometer
Carbon dioxide	5.1	30 in.	
Oxygen	7.9	30 deg. F.	
Carbon monoxide	0.5		

Because of a slight defect in the apparatus the methane content of the air could not be obtained at this time. On Dec. 3 a sample was taken through the steam

*Paper read before the Mining Society of Nova Scotia and entitled "Mine Fire in the No. 3 Slope, Springhill, N. S."

pipe in the pipe slope. This pipe line was afterward found to be broken at the 800-ft. level. The results shown in Table II were obtained.

TABLE II. ANALYSIS OF AIR FROM PIPE IN PUMP SLOPE

Gases	Percentage
Carbon dioxide	7.9
Oxygen	7.8
Carbon monoxide	0.6

On Dec. 8, or ten days after the slope was sealed, carbon monoxide ceased to appear in the samples and the oxygen content decreased to 1.7 per cent. Before opening the main slope on Jan. 17, 1917, a small exhaust fan was installed near the mouth of the slope and a number of 20-in. galvanized iron pipe sections each 5 ft. long were assembled for use, as it was the intention to open the main slope only and take the gases up through the pipe. Before opening, however, samples of air were taken from the fan and pipe slopes with the results shown in Table III.

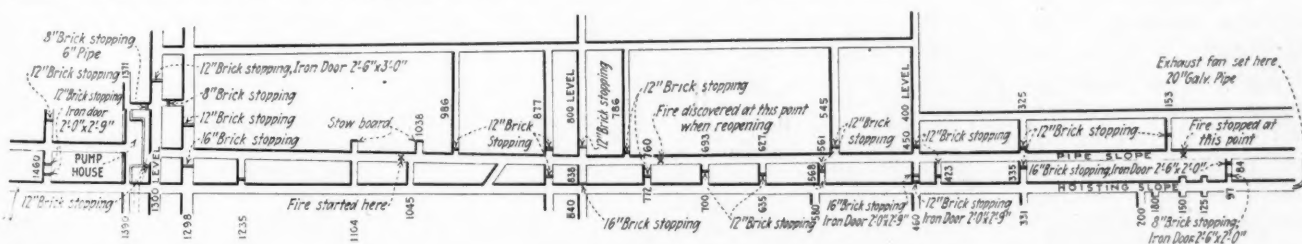
TABLE III. ANALYSES OF AIR WHEN AREA WAS FIRST OPENED

Gases	Percentage in Fan Slope	Percentage in Pipe Slope
Carbon dioxide	6.5	6.4
Oxygen	1.8	1.9
Carbon monoxide	nil	nil
Methane	7.9	12.5

At 2 p.m. the stopping in the main slope was opened and two men equipped with smoke helmets erected the ventilating pipe down to the 100-ft. crosscut. A stopping was built on the main slope at this point, and the one in the crosscut leading to the pipe slope was opened. An 11-in. pipe was led into the pipe slope to supply ventilation. A stopping also was built in this slope below the 100-ft. crosscut. When this latter stopping was completed that at the mouth of the pipe slope was removed and this passage cleaned from the surface down to the stopping. On Jan. 18 the analysis shown in Table IV was made from a sample of air taken from behind the stopping in the pipe slope at the 100-ft. crosscut, the barometer standing at 29 in.

TABLE IV. ANALYSIS OF AIR BEYOND 100-FT. STOPPING IN PIPE SLOPE

Gases	Percentage
Carbon dioxide	6.5
Oxygen	1.5
Carbon monoxide	nil
Methane	13.8



SPRINGHILL MINES SHOWING WAY IN WHICH PIPEWAY AND HOISTING SLOPE WERE OPENED BY SECTIONS

Entrance to mine is on the right hand side of map. The slopes dip toward the left. The fire started apparently by the heating of a prop 6 ft. from the steam pipe. The long slope became exceedingly hot, and the roof had fallen in places, as always happens when steam lines are introduced in the mines.

On Jan. 24 everything was ready to open the stopping below the 100-ft. crosscut. At 2:30 p.m. the opening was made and the same methods as described above were followed until the 400-ft. level was reached, where a stopping was built on the main slope and an air line extended into the pipe slope. It was not necessary to build a stopping in this latter passageway, as the water which had been used on the fire had washed a large quantity of clay and fine coal down to this point and closed the place entirely, thus blocking it effectively.

During the operation of moving down the main slope the fan, which was 5 ft. x 24 in. in size, was run at an average speed of 450 r.p.m. While cleaning operations were in progress the speed of the fan depended on the conditions prevailing. Although no signs of fire could be found there was ample proof that it had extended up nearly to the 100-ft. crosscut.

On Jan. 29 an opening was made in the stopping below the 100-ft. crosscut in the pipe slope, and fresh air from the 400-ft. level was allowed to pass through. This quickly cooled off this section. Cleaning and timbering operations were then begun. At 2 p.m. on Feb. 5 an analysis was made on air taken from behind the stopping in the main slope. This gave the results shown in Table V, the barometer still reading 29 in.

TABLE V. ANALYSIS OF AIR BELOW 400-FT. LEVEL, MAIN SLOPE

Gases	Percentage
Carbon dioxide.....	7.0
Oxygen.....	0.7
Carbon monoxide.....	nil
Methane.....	14.94

At 2:30 p.m. an opening was made in the stopping on the main slope, and the air line extended to the 772-ft. crosscut. Here a stopping was put in and plastered with "hardwall," which was found to give excellent results. During this entire operation no sign of fire could be discovered. A careful examination of all stoppings on both sides of the main slope was made and everything found to be in good condition. Telephone wires and water lines accordingly were extended to the 772-ft. crosscut. This work completed, the stopping at this point was opened and cleaning toward the pipe slope begun. Shortly afterward fire sprang up suddenly, but it was partly extinguished with two streams of water. A brick stopping was then built in the crosscut. On the following day the analysis showed carbon monoxide for the first time since the mine was opened. The results of the analysis then made are shown in Table VI.

TABLE VI. TWO AIR ANALYSES AT 772-FT. CROSSCUT

Gases	Percentage at 7 a.m.	Percentage at 11 p.m.
Carbon dioxide.....	5.8	6.6
Oxygen.....	2.7	2.4
Carbon monoxide.....	0.4	0.5
Methane.....	13.34	12.08

At this point it was found necessary to drive a crosscut from the main slope to the fan slope. After this was completed and a stopping put in below it, the stopping at the top of the fan slope was removed. The air was then short-circuited through the new crosscut to the fan slope, regulation being effected by means of a door in the stopping. On Feb. 26 the stopping at the 772-ft. crosscut leading to the pipe slope was again opened, and a stopping 12 ft. x 14 ft. x 12 in. thick was built in the pipe slope. On account of the intense heat and foul air this stopping had to be constructed by men wearing smoke helmets (not oxygen breathing apparatus). These men were relieved every hour. When

this stopping was completed the one in the crosscut was again closed.

On the following day cleaning was started down hill from the 400-ft. level, but had to be abandoned during the night on account of gases given off by the fire. The pipe slope was again closed off at the 100-ft. crosscut, where the stopping was left intact, and a door was kept in readiness for effecting quick closure. Another stopping also was provided on the main slope for the same purpose. These always were closed over week-ends, as it was not found necessary to prosecute the work on Sundays, and it was considered that the men were in better condition after having their Sunday rest.

On March 3 it was decided to rebuild the stopping below the 400-ft. level, and preparations were made to clean the section from this point to the 772-ft. crosscut by opening each crosscut on the way down, thus sweeping out the passages in short sections. This was found to be quite satisfactory under the conditions prevailing. Before opening the stopping at the 560-ft. crosscut the analysis of air from behind it showed hydrogen disulphide for the first and only time. This was quickly cleared away by extending an 18-in. pipe line off the 20-in. line which ran down the main slope. No difficulty was encountered in cleaning up this section. The analysis taken in the pipe slope below the 560-ft. stopping on March 8 was as shown in Table VII.

TABLE VII. ANALYSIS OF AIR IN PIPE SLOPE AT 560-FT. CROSSCUT

Gases	Percentage at 10 a.m.	Percentage at 3 p.m.
Carbon dioxide.....	8.5	8.8
Oxygen.....	0.2	0.3
Carbon monoxide.....	0.5	0.6
Methane.....	11.07	12.46

The above analysis shows the composition of air in the pipe slope only. That of the air in the main slope below the 772-ft. crosscut was as shown in Table VIII.

TABLE VIII. ANALYSIS OF AIR IN MAIN SLOPE BELOW 772-FT. LEVEL

Gases	Percentage at 7:30 a.m.	Percentage at 2 p.m.
Carbon dioxide.....	7.4	7.4
Oxygen.....	2.2	1.4
Carbon monoxide.....	nil	nil
Methane.....	15.08	13.31

No further difficulty was encountered until the stopping below the 700-ft. crosscut in the pipe slope was reached. When this stopping was opened, signs of fire were discovered, but as there was another stopping in the pipe slope below the 772-ft. crosscut it was decided to attempt the cleaning of this section without sealing it up and waiting for the fire to die out. Two streams of water from a 2-in. hose were played on the fire at this point until this section was cleaned out.

This was found to be the most difficult section to clean, as at one time the carbon monoxide amounted to 2.2 per cent. The section had to be closed for the night, but it was reopened on the following morning. A quantity of coal that had fallen from the roof was burned to ashes, some of it coked and some of it honeycombed, while a large amount of the accompanying stone was burned to clinker. This rock and coal was from 4 to 7 ft. deep.

This was the last place where any fire was seen although it started about 300 ft. below this point. Though the air analysis showed that no fire existed below the 772-ft. crosscut, the same precautions were taken in opening the lower sections as were observed in those extending from the surface down to this point. On April 13 the place where the fire originated was

reached and, although it had been generally supposed that the fire began from wood lying on the steam pipe, it was found that spontaneous combustion was the actual cause, as ignition started on a prop near the west rib of the pipe slope. The steam pipe was at least 6 ft. from this timber. No doubt the intense heat existing in this passage and the dryness of the wood used for props and packing made ideal conditions for a disastrous fire.

It is unnecessary to point out the danger incurred in carrying steam underground, as the results in some of the mines in Nova Scotia are well known. On account of the intense heat given off it is impossible to keep the place containing a steam pipe in good condition, especially where the roof is bad. Constant heat tends to disintegrate the rock and cause numerous falls. As a track is seldom installed in these pipeways the falls of rock are not removed, with the result that the area of the passage is greatly reduced. This tends to cause greater heat, as the amount of air necessary to keep the place cool cannot be circulated.

COAT PIPE; INSPECT DAILY; SUSPEND BY CHAINS

Where it is necessary to carry a steam pipe underground I would make the following suggestions: The pipe should be insulated with good material and a daily inspection made. It should be suspended with chains or rods fastened to permanent supports. All inflammable material should be kept away from the pipe line. A track should be maintained in such a pipeway so that all falling material can be removed promptly. And, lastly, stoppings should be so arranged that the pipeway can be quickly sealed off from the rest of the mine in case of fire.

I would like to call attention also to the importance of analyses of the gases contained within a section on fire. Systematic analysis of samples of the atmosphere from a burning mine or a section thereof has not received the attention in the past that its usefulness warrants.

When an entire mine or a section of it has been sealed to exclude air the samples of the atmosphere within the sealed area become desirable in order to determine the effectiveness of the stoppings. If they are tight this fact is shown by the depletion of oxygen in the atmosphere behind them. A period of anxiety always follows sealing, and any measures that may tend to allay fear that the fire is spreading or that will enable the mine officials to act promptly in case conditions grow worse, is worthy of consideration.

Another reason for the systematic collection and analysis of samples of air from the sealed area is to obtain

information regarding the advisability of removing stoppings. Disastrous consequences have sometimes followed the premature reopening of sealed areas. Moreover in some cases fires have burned vigorously after external air was believed to have been excluded. Hence stoppings are sometimes left in place for many months, yet when they are eventually removed some uncertainty is felt as to the results.

I wish to thank C. M. Martin, underground manager at No. 2 mine, Springhill, for the analyses of gases here presented.

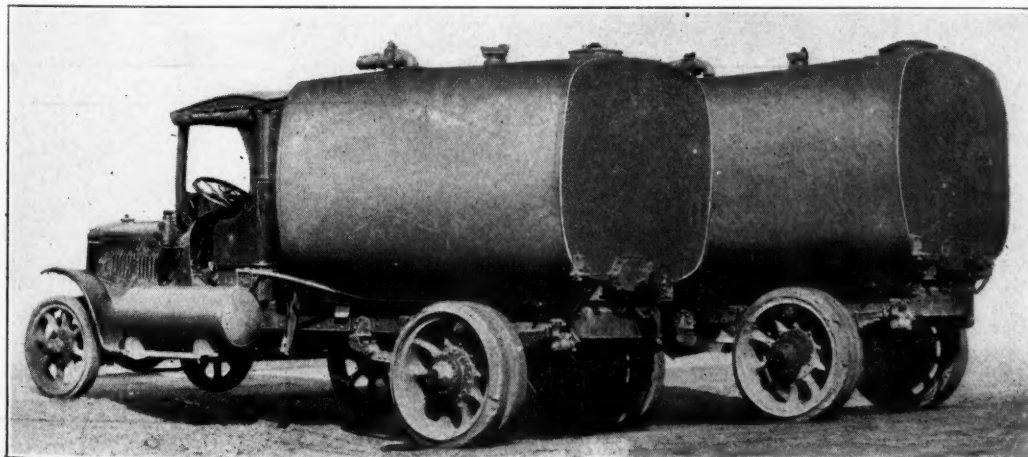
In Minneapolis Trucks Vend Powdered Coal For Apartments, Offices and Factories

A CENTRAL pulverizing plant is operated by the Hennepin Atomized Fuel Co., at Minneapolis, Minn., using for its delivery to hotels, offices, apartment houses, factories and public buildings five-ton Acme tank trucks. The raw fuel is unloaded by gravity into a concrete hopper, from which it passes through a crusher which reduces it to a maximum size of one-inch cube.

Bucket elevators carry the crushed coal to a storage bin, where a variable feed conveyor takes the fuel through an automatic scale into a mechanical rotary dryer. Here the moisture content is reduced to approximately 1 per cent, or 20 lb. per ton. It is then pulverized until 85 per cent will pass through a 200-mesh screen and 98 per cent through a 100-mesh screen. Immense storage bins then receive the atomized fuel for distribution.

The trucks are loaded by gravity from these bins. When unloading into the intake at the building, the tank, which is mounted on a dump chassis equipped with a power hoist, is tilted to an angle of 36 deg. Gravity then carries the fuel through an airtight flexible connection into the storage bin. A blower delivers it to the furnace, the fuel being fed to the side of the blower by a spiral screw conveyor operated by a variable-speed motor. It passes to the furnace through one or more burners, the feed to which is controlled by a valve operated from the boiler-room floor.

As the equipment is airtight the boiler room is clean. The feed is flexible, so that it is possible to meet fluctuating boiler loads. A large percentage of the fuel is saved now that wasteful hand-firing is abolished. Labor is saved both in firing and ash handling. The pulverized coal is hauled to destination without spillage. It is indeed strange that coal companies have not seized this plan for promoting sales of their product.

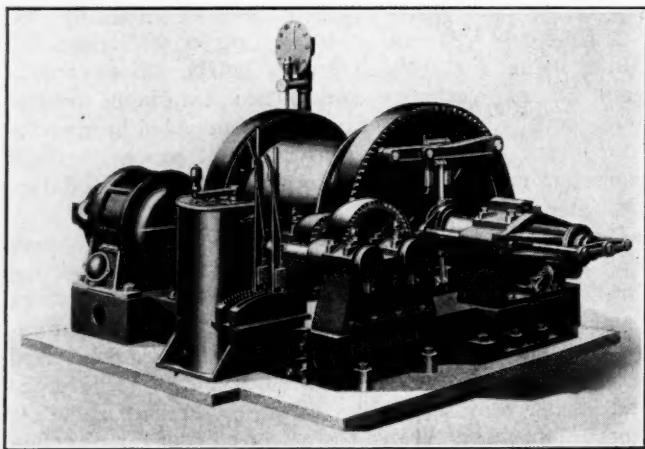


Pulverized Fuel Tanks

Atomized coal is delivered in this airtight tank to the industries and apartment houses of Minneapolis for use under boilers. The company using these trucks has built up a trade which is now denied to its competitors.

This Hoist Has Improved Double-Toggle Clutch; May Be Operated by Hand

MANY improvements and refinements of design are embodied in a line of new hoists recently placed on the market. One of these machines is shown in the accompanying illustration. Among the details of construction differentiating this hoist from others designed for the same purpose is a double-toggle clutch mechanism which is asserted to be a marked improvement. The clutch in most cases is actuated by a double-acting cylinder, but it may be arranged for hand operation. It drives directly from the rim of the main gear, which carries the friction element, to the flange of the drum.



HOIST MADE WITH A CLUTCH OPERATED BY HAND OR DOUBLE-ACTING CYLINDER

All the joints between sections of the main frame are tongued and grooved, so as to afford a rigid connection. Differential brake has no cast-iron parts, thus no flaws and blowholes exist to cause failure.

This construction eliminates all torsional stresses in the drum shaft as well as end stress or thrust upon the bearings and operating mechanism. When thrown the device is self-locking.

Tongued-and-grooved joints between all sections of the main frame, affording rigid connection between the parts, are another constructional refinement. Motor and intermediate bearings are mounted on a one-piece casting, which assures permanency and rigidity. Satisfactory provision has been made for the lubrication of all bearings and cast iron has been entirely eliminated from the mechanism of the differential brake, thus

obviating the danger of failure in these parts arising from flaws or blowholes.

Hoists comprising this line of machines vary from 100 to 300 hp. in size and can be arranged for either electric-motor or steam-engine drive. They are built by the Treadwell Engineering Co., of Easton Pa., and were designed by Thomas O. Werner, an expert in hoist engineering with many years of experience. The sound principles of design embodied in their construction and the large manufacturing facilities of the maker as well as the service that can be rendered the purchaser should make these machines popular among users of this class of equipment.

Peel and Season Timber to Save Freight And Prepare Wood for Preservation

PERHAPS no phase of mining is given less attention than preparation and storage of mine timbers, yet timber in many mines constitutes one of the principal items of cost, particularly in metal mines, says the U. S. Bureau of Mines. By better preparation and storage of mine timbers the durability and strength may be considerably increased and the consumption decreased, thus reducing mining costs.

Preparation may be considered under two heads, peeling and seasoning. The principal advantages from peeling timbers are: (1) It lessens weight, (2) increases durability, (3) offers greater resistance to insect and fungus attack, and (4) promotes seasoning.

Peeled timber weighs 6 to 10 per cent less than unpeeled green timber. Therefore peeling at point of shipment effects a considerable saving in cost of freight. In comparatively dry workings peeling will increase the life of timber appreciably, but in wet places this is not so apparent. In dead timber the space beneath the bark is an ideal breeding place for wood destroying insects, which cause both weakness and more rapid decay. Bark also causes the retention of moisture and thus promotes fungus growth.

Seasoning mine timber has the following advantages: (1) It increases the strength and in some cases the durability, (2) decreases the weight and thereby reduces cost of freight and handling, (3) protects from insects and decay before the timber is placed in service, and (4) makes the timber more easily susceptible to preservative treatment.

Records of actual tests show that thoroughly seasoned

Crew Which Took Combination Honors at St. Louis



To Kenilworth, Utah, and the Independent Coal & Coke Co. went the award for the best combination mine-rescue and first-aid team in the international meet at St. Louis. The banners on either side show them the champions of Utah, which goes almost without saying seeing that they carried off the combination prize.

timber may be from 25 to 50 per cent stronger than green timber of similar varieties. Under some conditions seasoning increases the durability, but in general seasoning without preservative treatment does not add greatly to the life. Like peeling, seasoning decreases the weight of timber and thus saves freight and cost of handling. Experiments by the Forest Products Laboratory, Madison, Wis., have shown that round mine timbers up to 11 in. in diameter air seasoned three months lost 15 to 25 per cent of their original green weight, depending upon the size and variety of the timber. In general mine timbers may be sufficiently air seasoned for most purposes in three to six months,

depending upon the weather, locality and variety of timber. Timber that is to be treated must be seasoned, as the preservative fluid cannot be injected until at least a part of the water which green timber contains is expelled.

Usually timber storage does not receive the attention that it deserves. Proper storage is essential for proper seasoning, also for preventing checking and initial decay before placing the timbers in service. Timber yards should be well drained and free from vegetation and decaying wood. Timber should be placed on supports at least 12 in. from the ground, and should be so piled that air can circulate freely.

Machine for Hoisting and Automatically Unloading Rock Eliminates Ten Men from Payroll



Dump Builds Its Own Track Up an Eighteen Per Cent Grade—Will Discharge Over 240 Cars of Rock Per Day—Cone Spreader Distributes the Refuse as It Falls

BY E. D. RINEHIMER
Wilkes-Barre, Pa.

ROCK disposal at the mine is one of the problems that sometimes bothers the superintendent. It is seldom, however, that either this or the other difficulties that constantly arise cannot be solved when sufficient time and thought are expended upon them. It often happens also that a method of performing certain operations has been in use for so long that the

operator does not realize that an opportunity to cut down expenses is presented through the introduction of some other system until someone calls attention to this fact either through the press or by some other means.

Such an instance is illustrated in the accompanying



DUMPING MINE ROCK BY TURNTABLE TRUCK

This method depends on "brute strength and awkwardness," as the saying goes. The track weighed down with a loaded car running on bad track is pushed only with difficulty and, if given gradient, is hard to push back, for even when empty it is heavy. The crowd has been amplified here by two visiting women but five men is not unusual where speed is desired.



SAXON DUMP AT TOP OF HILL OF ITS OWN MAKING

The hoist on the dump pulls up the loaded mine car and near the top the car leaves the regular grade for a steeper slope on the machine, where the rock is dumped and falls on a cone spreader. Note the two tracks on the rock dump.

photograph. This shows a system of handling rock that has been in operation since time immemorial and which is being used today by many operators. Where the mine is an old one the bank grows to such a length that a locomotive displaces the mule, and several cars



HIGH DUMP ON RELATIVELY LEVEL GROUND

To get a high dump like this on level ground without a hoisting plane is quite difficult. A long locomotive haulage road is necessary and it must be built on a steep grade. This is an expensive way of dumping when the dump has reached normal height and is still more expensive while the dump is shallow.

are taken to the dump at one time. The serious objections to both these plans are, first, the limited number of cars that can be handled and, second, the large acreage required on account of the limited grade that can be given the track. Perhaps the most serious objection to this method of slate disposal, however, is the large number of men necessary to do this work, which brings no return to the operator.

A number of years ago the Vesta Coal Co., realizing the importance of the problem, installed a machine known as the Saxon slate dump. Other operators in the soft-coal regions, seeing the possibilities of this device, put in similar outfits. The Wentz interests were the first anthracite producers to take advantage of this machine, and one was installed at a plant of the Upper Lehigh Coal Co. about six years ago. At this colliery it required originally a locomotive, an engineer, two laborers for dumping, one slate-plane engineer, and one

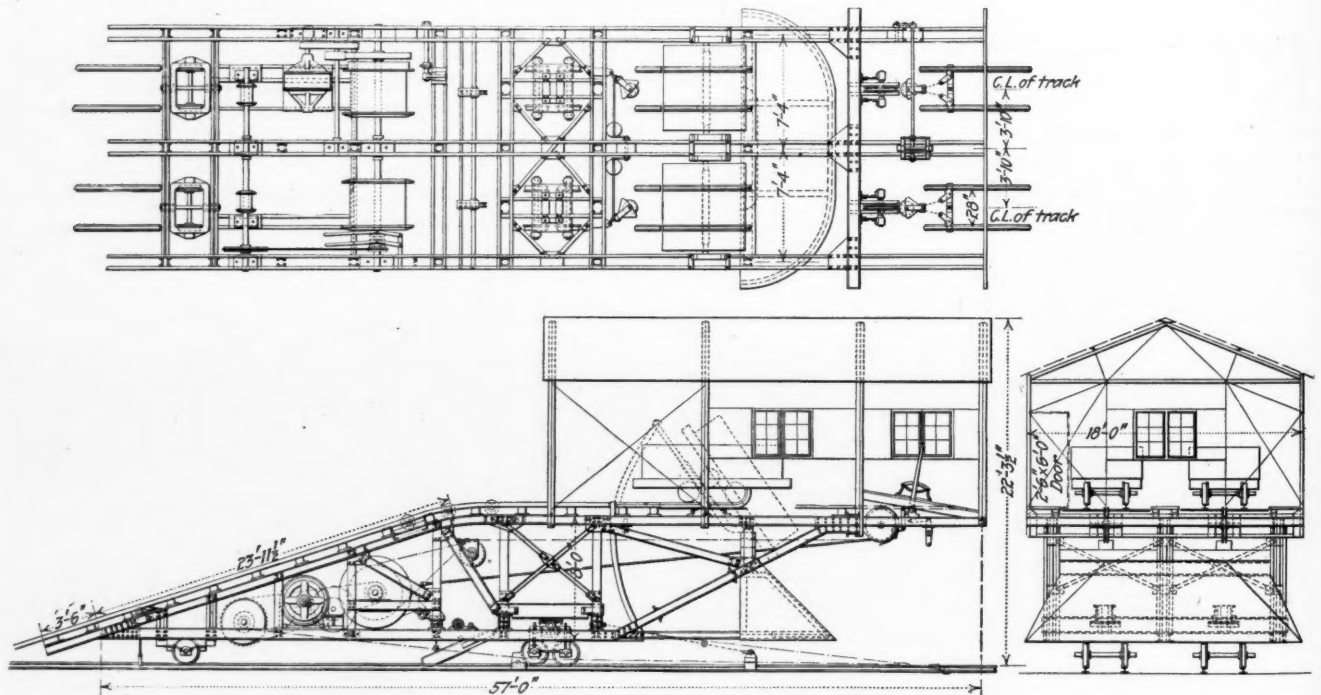
loader at the pocket. In severe weather two more men were needed. After the dump was installed only an engineer and two helpers were necessary, thus showing a saving of from three to four men and a locomotive. On the strength of this success the same interests installed a similar machine at the plant of the Maryd Coal Co., where it originally required eleven men and two mules to handle the rock. The same quantity of waste is now handled by four men, showing a saving of seven men and two mules.

The Hudson Coal Co. in 1918 installed at the Pine Ridge colliery the largest machine of this type that, up to that time, had been built. It was a double-track affair, had a capacity of 240 cars per day of eight hours and operated upon an 18-per cent grade. This installation rendered unnecessary the services of about ten men who otherwise would have been employed.

This same company is now installing a new machine at this colliery. This is being designed and built by the Vulcan Iron Works, of Wilkes-Barre, Pa. The new machine is much larger than the original, being about 57 ft. long and 18 ft. wide. It will weigh when completed approximately thirty-five tons. It will build its own track up an 18-per cent grade, and the principal improvement over the original machine will be an increase in height. This will enable the dump to tip the cars to an angle of about 45 deg. to the horizontal.

Underneath the dump a steel plate chute, or spreader, shaped like a cone, has been placed. This throws the rock clear of the machine to the side or forward, thus building the roadbed. As the tracks are laid before dumping begins, it will be seen that when the bank is built up to them, the machine is ready to advance to a new position. This it does under its own power.

The operator's platform is elevated so that he can see the car as it comes up the bank. It is so constructed as to be level when the machine is working on the dump. A corrugated sheet-steel housing protects the operator and the device is actuated by a 75-hp. G. E. motor.



DUMP DESIGNED FOR USE AT HUDSON COAL CO.'S PLANT

Because coal is valuable is no reason why more money should be expended on provisions for dumping it cheaply than is expended to this same end for the dumping of

rock. Rock dumping is a task to be performed as is coal dumping and it should be done just as cheaply as conditions permit. That there is no revenue to be obtained

from dumping rock is certain, but equally sure is it that the work is a big creator of deficits if not handled economically, and at how few plants is it so handled!

Electrical Considerations Which Govern in a Choice of Locomotives for Any Given Class of Service

Locomotives with Dynamic-Braking Controllers Deliver Current on Descending Grades and Must Have Additional Motor Capacity — Effect of Low-Voltage — Solid Side Frames Increase Motor Temperature — Series-and-Parallel Control vs. Series-Parallel Control

BY H. H. JOHNSTON*
East Pittsburgh, Pa.

WHEN calculating the motor capacity the gear ratio and the drive-wheel diameter necessary for a given motor speed may well be considered. For a given machine raising the gear ratio will mean a reduction in speed and an increase in tractive effort for the same current per motor. The effect of increasing the diameter of the drive wheels will be exactly the opposite, i.e., an increase in speed and decrease in tractive effort for the same current consumption.

A motor having the desired capacity may require other attributes before it can be applied to the locomotive. The gage of the track and the clear distance between wheels for outside-frame locomotives, or the distance between the side frames of inside-frame machines, may not permit the use of the number and type of the motors desired, having the necessary capacity. With narrow gages this difficulty is overcome in some instances by the use of machines having a larger number of smaller driving motors. For example, a three-motor three-axle locomotive might be used instead of a two-motor unit. In other cases it might be advisable where larger machines are required to operate two two-motor units, or two three-motor units in tandem.

MOTOR MUST BE LARGER FOR DYNAMIC BRAKING

Motor capacity must be taken into consideration on such locomotives as are to be equipped with dynamic-braking controllers, for during the operation of the control in the braking positions the motors deliver current as generators. Instead of having a cooling period the motors are working under load while descending grades with their trips. Thus additional motor capacity will be required or what margin of reserve the machine would otherwise possess will be decreased by the use of the dynamic-braking system.

One consideration often overlooked by operators is the voltage available at the locomotive. Down in the mine the potential may fluctuate over a wide range of values, and at just the time when good voltage is needed at the locomotive it may not be available. Such conditions are expensive in mine operation and indicate excessive loss of power in transmission as well as in time by slower or retarded operation of the locomotives. Interruptions in the operation of other equipment such as gathering locomotives, coal-cutting machinery, pumps, fan motors, lighting and other devices receiving power from the line are affected either continuously or intermittently by slower speed due to low line voltage. Unnecessary abuse is thus imposed upon the electrical equipment. This is an indication of inefficient operation which can be overcome by remedying the inadequate power supply.

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With 250 to 275 volts at the substation, a potential of 80 to 100 volts at the working face is not unusual. Such conditions are nothing short of a crime, and all equipment designed for 250 volts and operating at, say, 100 volts is working at an efficiency 50 per cent below what it should be. To illustrate what may be the effect on locomotive output we will consider an extreme case.

Suppose a 20-ton haulage locomotive is starting with its load on a 4-per cent grade 6,350 ft. (1.2 miles) from the substation, the load being such that sand is required on the rails in order to obtain greater adhesion. The draw-bar pull amounts to 12,000 lb. or 6,000 lb. with a current draw of 390 amperes per motor. With 50 lb. rails, 4-0 trolley wire, good bonding, track paralleled by a 4-0 wire, and with a 1,000,000-c.m. feeder cable, the total voltage drop in the trolley and return would amount to 142 volts, leaving only 108 volts at the locomotive.

CONTROLLER IN "MOTORS-PARALLEL" POSITION

In all probability the locomotive operator would notch the controller into the "motors-parallel" position, the result being that the line drop would be equivalent to the generated voltage, and enough torque could not be exerted by the motors to continue the movement of the load. This condition would indicate the need of additional substations, for but little would be gained by installing more feeder copper. Low-voltage conditions are responsible for many electrical-equipment failures, higher maintenance and operating costs.

The capacity of motors necessary for any service is dependent upon two considerations: (1) They must not overheat in continuous service. (2) They must be able to handle satisfactorily maximum loads occurring during any given interval. The normal rating of a mine

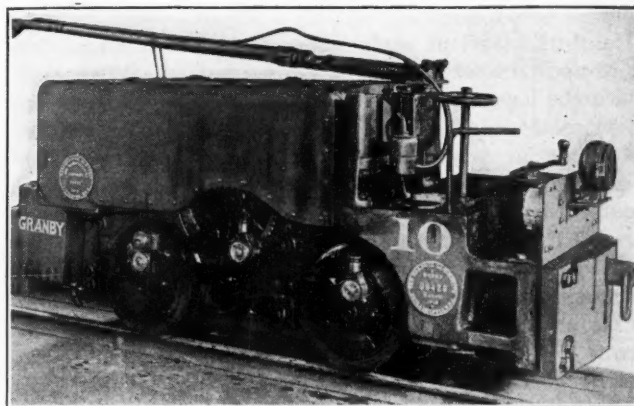


FIG 1. ONE OF THE OLD TIMERS

An early type of electric mine locomotive. The connecting and side rods evidently were heirlooms from the steam and compressed-air locomotives of an earlier day. They no longer form component parts of electrical locomotives.

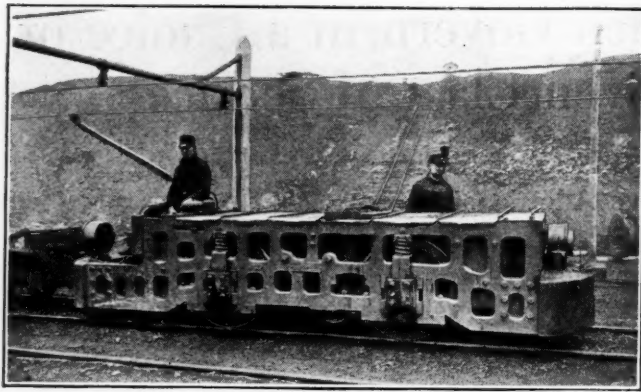


FIG. 2. AMPLE OPPORTUNITY FOR VENTILATION
Outside frames with plenty of air openings facilitate radiation of heat from the motor cases. The frames themselves may be either steel castings or heavy plates with the openings cut or burned through them.

motor is the load that may be carried during a run on the stand at the rated voltage and current consumption without giving a greater rise in temperature than 75 deg. C. (135 deg. F.), measured by a thermometer, on the windings of the machine in accordance with the standards of the American Institute of Electrical Engineers.

In this connection it is important to note that external ventilation which exists under a mine locomotive, particularly in haulage service, renders the temperature rise resultant upon given losses in the motor less than that noted in a shop test on the stand. The amount of this ventilation will be greater or less depending upon whether the side frames are open or solid.

ATTAINS BALANCING OR FREE-RUNNING SPEED

The tractive effort of a locomotive is consumed in overcoming train, grade and curve resistance and in accelerating the trip. As the speed increases the tractive effort decreases, until a point is reached where the developed draw-bar pull equals the train, grade and curve resistance only. This is known as the balancing, or free-running, speed.

Control equipment, including mainly the controller and grid resistor, is designed to afford easy and accurate manipulation during acceleration and to permit governing the speed of the trip at all times. The number of notches is an important detail to consider, as this, within the limits attainable by the locomotive manufacturer, determines the smoothness of acceleration and the extent to which peak currents may be kept down.

Height limitations early brought about the use of the series-and-parallel type of drum controller. With this device the locomotive can either be started with motors in series or in parallel. Locomotive operators seldom use the series combination although when starting with parallel connections the peak currents from the line are greater than when starting with the motors in series. Series-parallel control (which differs from series-and-parallel control) provides that the motors shall be started in series, making the transition from the combination to motors in parallel without entire loss of torque.

This gives a more satisfactory type of control as careful design in the resistor and proper determination of the number of control points will give smoother and more economical operation both from the power-consumption standpoint and that of ease in operation of the

locomotive. The series-parallel control can be incorporated in the larger haulage locomotives (ten tons and above) by some manufacturers without any necessity of increasing the height. This is accomplished by the use of a master controller with magnetically or electro-pneumatically operated contactors.

This system has proved advantageous because of low maintenance, fewer inspections and less frequent renewal of contacts, this latter being brought about by obtaining a better magnetic blowout and relative movement of the contacts making and breaking the circuits. Keeping the contactor compartment away from the operator gives him more space and obviates dangerous arcing near him. Overload protection is provided by relay opening of the auxiliary circuit to the contactors when a dangerously large current is flowing. This overload relay also is set well away from the operator, where it is not likely to be tampered with or its setting changed. The master controller is operated more easily than a main-circuit drum controller, and greater attention can therefore be given by the operator to the track, train movement and signals.

Going further into detail, such items as side-frame springs, journal boxes, bumper blocks, brake rigging, sand boxes, trolleys, headlights, wiring, etc., all need to be given careful consideration. In all these, detail developments are continually being made in order to meet particular operating conditions that vary from mine to mine.

The first electric mine locomotive constructed and put in service bore small resemblance to present-day units. At that time all equipment, including the industrial type of motors, controllers, resistor units, switches, etc., was much exposed. It soon became apparent that in order to meet the rough and tumble of mine operation and afford protection against falling slate and material from above, vast improvements were necessary. It also developed that the side-frame type of locomotive with its cover plates formed essentially an inverted box over the equipment.

MANY MATERIALS USED FOR SIDE FRAMES

Seven types of side-frame construction have been developed up to the present time. These include (1) solid cast-iron slab frames, (2) combined cast-iron and structural plates, (3) frames composed entirely of structural steel, (4) solid cast-steel, (5) cast-bar steel, (6) solid rolled-steel and (7) rolled steel plates with openings cut or burned out, giving the appearance of open-bar steel side frames. All of these types appeared to possess certain points of excellence at the time of their development and most of them had advantages when applied to some particular size and weight of locomotive. For example, structural side frames appeared advantageous to operators repairing or rebuilding frames damaged in wrecks or otherwise. On the more powerful locomotives, in order that the desired work might be performed, ballast blocks were necessary, as the side frames of structural material alone did not give sufficient weight.

In the design of side frames accessibility and ventilation are often overlooked. Ready access to the equipment when making repairs insures not only that such repairs will be made but frequent inspections also. Money may here be saved through greater production. A piece of apparatus that is difficult to inspect is likely to be totally neglected until it fails.

Locomotive bumper blocks vary widely in design.

This is brought about primarily because of an equal variation in coal-car bumpers and couplers. Solid cast-steel bumpers with safety lugs cast integral are the type generally employed on haulage locomotives, wood and wood-filled bumpers with plate-steel surfacing and separate safety lugs being common on the smaller gathering machines. Care must be taken in the design of locomotives to provide for transmitting the load to the side frames, simultaneously maintaining a permanent and rigid fit between these members and the bumpers.

The average locomotive operator believes that the springs under a locomotive are for the sole purpose of bettering the riding qualities of the machine itself and lessening the destructive action upon its equipment. This, to be sure, is their purpose in large measure. They exert a powerful influence, however, in the effect the locomotive has on the rails and roadbed. Its ease on the rails and its riding qualities to a large extent determine a locomotive's immunity from derailment under normal operating conditions. Maintaining the rails and roadbed in good shape will reduce in turn the wear and tear on the locomotive and its equipment, thereby decreasing operating expense.

Much trouble formerly was experienced with accelerator resistors—with those of the ribbon and ventilated-cell type as well as with those of the grid variety. Burnouts and breakages were overcome in large measure by careful investigation of the capacities required. Breakage also decreased as experience was gained in designing and manufacturing resistor units of alloy metal instead of cast iron. Larger cross-sections and different methods of supporting the grids also were employed.

Any type of accelerating resistor element practical for use with mine locomotives of present-day dimensions can be burned out. Although high temperatures, ranging up to red heat, of the grids are common practice and for short periods are not injurious, much of this could

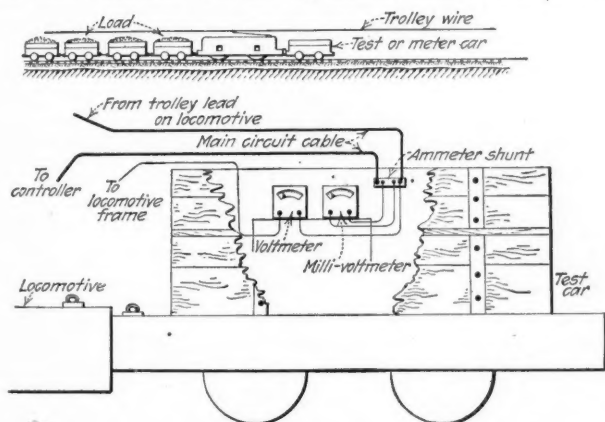


FIG. 3. A TEST CAR AND ITS CONNECTIONS

Either an ordinary coal car or one normally used for hauling sand or men may be used in testing current consumption. The ammeter is connected between trolley and controller and the voltmeter is between trolley and ground.

be avoided by more careful manipulation of the controller.

Reserve capacity both electrically and mechanically is a potent factor in the success of almost any class of machinery. Probably no other service depends upon this oftener than does that of mine haulage and gathering. This reserve capacity may be called into action for many reasons and its use be required for short or long periods regardless of the cause from which it may arise. One important need for reserve capacity under

average present operating conditions comes about through frequent inadequate power supply as well as inefficient distribution and transmission. In many cases low voltage causes more abuse of equipment than all other factors, and reserve capacity is more often needed immediately for this than for other causes. This should not be the case with efficient mine operation.

Better and cheaper power is now being obtained by the use of automatic substations. These not only do away with attendants but by saving time increase the output. Safe and more constant power conditions prevail as a result of automatic control, as it does away with the variable human factor and effects automatic

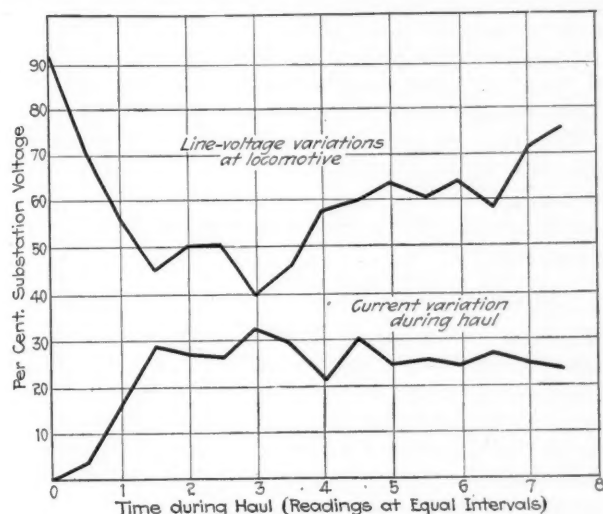


FIG. 4. THE RESULTS OF A TEST RUN

The upper graph shows the variation in voltage at the locomotive during a test run, and the lower shows the current consumed. It should be noted that at one point the voltage at the motor dropped to only 40 per cent of that existing at the substation.

regulation in accordance with the load requirements and operating conditions, whether these be normal or abnormal.

It is simple and easy to make a test on the power conditions as they exist at the locomotive. This may be done by means of an ammeter and voltmeter, the ammeter being connected in the circuit between the trolley base and the controller while the voltmeter is connected from trolley to ground. A full set of readings for a complete run should be taken. By plotting these against time a fairly accurate graph of the conditions existing is obtained. Approximate locations along the haulageway may be noted at the time of making readings and by having at hand a profile of the haulageway the relation of grades, loads, track and line conditions can be compared with the graphs made from the readings taken.

It probably will be found convenient to have the above-mentioned meters set up in a separate car with provisions for temporarily illuminating them. This permits all possible freedom and attention to taking readings while the locomotive and trip are in motion. Test runs taken under various load conditions will prove both interesting and valuable at any mine. If a practice is made of taking such records at frequent intervals, in many instances any poor conditions existing in bonding, trolley or feeders can be detected and corrected before any great losses are incurred in time or output. Fig. 3 indicates the connections to and arrangement of meters and Fig. 4 is a graph representing power conditions at the locomotive as they have been found in some mines.

Electric Welder Which One Man Can Carry Affords Wide Current and Voltage Range

AUTOGENOUS welding is well and favorably known throughout the coal field, having been used extensively there. Three means of producing welds of this kind—thermit, oxyacetylene and the electric arc—are employed. Each of these has some field to which it is best adapted.

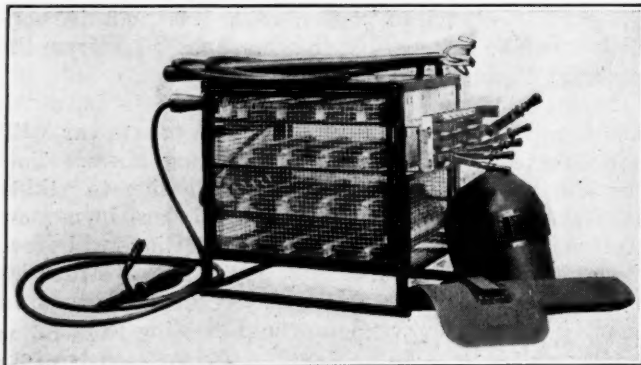
For use within the mine itself in rail bonding and similar work the electric machine possesses many advantages. The requisite power always is available wherever access can be had to a trolley wire or other electrical conductor, and energy is consumed only while the arc is flowing.

Of course, work underground, particularly rail bonding, is of a highly nomadic nature and the apparatus used for this purpose is successful about in proportion to its portability. Heretofore machines designed primarily for railroad work have been largely employed in the mines. Here they were to a degree handicapped by their weight, as they usually required two men for their transportation.

NON-CORRODIBLE BARS OF HIGH RESISTANCE

To meet the demand for a comparatively light and readily portable machine especially applicable to use underground, one that is efficient in operation yet can be easily carried about by one man, the Railway Trackwork Co., of Philadelphia, Pa., has developed and placed on the market its Ajax electric arc welder, type I. N. D. This is a rheostat consisting of high-resistance non-corroding wire, supported on insulator bars, fastened within a light, rigid angle-iron frame. At either end of this frame at the top is placed a D-handle for convenience in carrying, while at one end is located a series of control switches giving a satisfactory range of current flow for welding purposes. Of course the outfit embraces an electrode holder, a helmet and a trolley or cable hook. As trolley wires usually are brighter and consequently offer better electrical surface contact on the bottom than on the top this hook is fitted with an under clamp making contact with the wire upon its lower side.

This machine weighs 55 lb. and consequently can be readily carried about by one man. Its dimensions are 15 x 20 x 20 in. As is well known, the voltage in mines is subject to frequent and comparatively wide variations, in some instances falling to as low as 50 per cent of its normal value. This welder is of such capacity as



WELDER WITH PORTABILITY AND VOLTAGE RANGE

A uniform job like welding a rail would seem to want little adaptability on the part of the welder. Unfortunately the current and its voltage vary, and the welder must be able to meet all the many variations.

to be capable of satisfactory operation under any and all conditions likely to be encountered.

The regulating switches already referred to provide a range of current from 18 to 277 amp. with normal line voltage, while should the potential drop to 150 volts, 174 amp. can be obtained. Ventilation is excellent and as no portion of the coils is inclosed, air has free access to all parts of the apparatus. Furthermore the internal wiring is so arranged that should a break develop in any coil it can be repaired quickly in the field and no serious delay be caused.

At the end of the machine where the current enters, a line switch is provided. The switchboard regulating the current delivered to the electrode is placed at the opposite end and the switches there located are not only of heavy and substantial construction but are so arranged as to give a perfectly flexible control. A shunt switching device also is provided which facilitates the use of large currents when the voltage is far below normal. In all, thirty different values of current, within the range above mentioned, can be obtained.

Portability, high amperage, a wide range of current control, complete ventilation and ready accessibility of parts are the outstanding characteristics of this machine. Its small size, easy transportableness, simplicity and reliability are the considerations that adapt it particularly to work underground.

Suggestions as to the Maintenance of Alternating-Current Hoist Motors

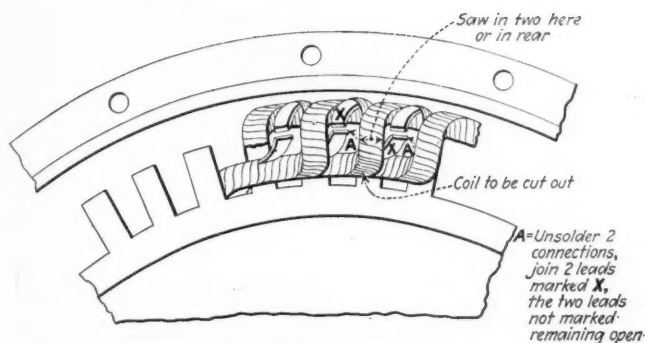
BY J. E. HOUSLEY
St. Louis, Mo.

ALTERNATING-CURRENT hoist motors require maintenance methods which differ somewhat from those employed upon steam hoisting engines. With the electric hoist it is especially important that the men responsible for repairs acquaint themselves with the principles upon which alternating-current machines are built. These are set forth in a number of excellent handbooks on electricity. From the same source the repairman may obtain a valuable knowledge of the function of the various kinds of installation used, linen tape, varnished cloth tape, fish paper, fiber and treated or empire cloth.

A common ailment of the slip-ring hoist motor is the breaking of resistance grids. As the function of these parts is to limit the initial power inrush taken by the machine, when a grid is broken it cuts out a portion of the starting resistance, thereby giving a jerky and sometimes diminished starting effort. As this condition affects only the starting circuits the running characteristics of the machine are not changed.

In motors having partly closed slot rotors with a round-wire winding, trouble may develop from the coils grounding where they leave the slot. This usually is caused by a gap on the coil, where its taping does not reach quite into the slot of the rotor. This gap becomes covered with carbon and with the bronze particles from the wearing of the brushes and the slip rings.

It is well not to use slip-ring brushes which contain a high percentage of copper, for as the brushes wear, this metal is deposited on the windings of the rotor. After a time these particles will work between the bars or coils and cause breakdowns between the phases and shorted windings. If a failure of this nature occurs



SHOWING HOW TO CUT OUT A COIL

The cut-out coil may be left in place if it is cut in two so as not to generate a local circulating current when the motor is in operation.

and only one or two coils are damaged beyond temporary repair, such coils may be cut out of the circuit and the motor kept in service indefinitely or until such time as permanent repairs can be made.

"Cutting out" a coil appeals to many electricians as something of a mystery, whereas it really is extremely simple, especially as compared to the analogous operation on a direct-current armature. In cutting out the coil on an alternating-current stator or rotor it is necessary to unsolder the two leads of the damaged coil; this leaves an open lead on each coil adjacent to the damaged one. Now join these two open leads by either a clip or a wire of the same size as the one in the coils. The coil which is cut out of the circuit may be left in place if it is cut in two at some point so as to prevent a local circulating current being generated in it. Such a current would cause the coil to become overheated and might damage the adjacent windings. This operation is shown in the accompanying illustration.

IN THE SMALL CLEARANCE LIES A DANGER

The air gap between the rotor and stator on alternating-current motors is small. For this reason the clearance should be checked frequently. When danger of the rotor striking the stator becomes evident the bearing linings should be renewed. It is important to examine periodically the bearing housing. The vibration set up by gearing often loosens the bearing shell within this housing, sometimes sufficiently to allow the rotor to strike the stator. This condition can in many cases be remedied by planing the joint between the bearing cap and the housing.

The motor should be watched for signs of overheating. Where it is operating on a feeder circuit together with other induction motors it is possible for it to run with one of the fuses of the feeder circuit blown. This, however, is accompanied by excessive heating of the motor if it is working at or near its rated capacity.

Dragging brake bands on the hoist mechanism are another source of over heating. In one instance the running load on a 110-hp. hoist motor was increased from 85 to 110 hp. with proportionately higher starting values, because a brake of the band type did not clear the drum sufficiently when the brake was released. This increased load, amounting to 25 hp., was not sufficient to cause the brake to smoke, and the engineer did not check the brake clearance with sufficient accuracy until the motor began to show serious overheating accompanied by the throwing of solder from the rotor connections. This would indicate that electrical maintenance should involve also an appreciation of the mechanical defects.

Emergency Power Derrick Aids in Quickly Removing Heavy Debris After Mine Fire

NCESSITY recently caused the invention of an inexpensive derrick, simultaneously showing a new use for small portable mine hoists. Fire had gutted a mining plant in the West and it was necessary to provide means for quickly clearing away the debris so that construction of the new building might begin promptly. The derrick in question was used to lift the heavy material. The hoists employed (in this case Little Tuggers) had been originally installed underground. They are small, comparatively light, yet powerful machines driven by either compressed air or steam.

The derrick was built and operated as follows, both mast and boom being made from telegraph poles: The mast was provided with a suitable foot and swiveled at the top on a pin passing through a plate to which guy ropes were attached. The boom was hinged to the mast at its lower end in the ordinary manner by means of side plates. One rope extended from the upper hoist, bolted to the mast near its foot, to a sheave near its top, thence to a block at the peak of the boom. From here it was reeved back and forth between this block and the one at the masthead forming the topping lift. The other rope passed from the drum of the lower hoist under a sheave attached to the mast near its foot, thence over a sheave near the boom peak, whence it was reeved through the hook block and a second block at the peak of the boom. This formed the fall or hoisting line—the real "business" portion of the derrick.

Swinging of this derrick was done by hand, although a third hoist might readily have been used for this purpose. In such a case a bull wheel or its equivalent would have been necessary. For work of the nature that this



MINE HOIST MEETS HOISTING NEEDS OUTSIDE WORKINGS

The superintendent who regards the room hoist as a solution of underground difficulties only misses many advantages which such a convenience will afford.

device was intended to perform power swinging is hardly essential.

This derrick is shown in action in the accompanying illustration. With the pulley arrangement shown it was capable of lifting a load of approximately three tons. The lifting capacity may, however, be varied to suit local conditions through changes in the number and arrangement of the hoisting sheaves.

Convertible Crane Profitably Used at All Stages from Construction Onward

MANY coal companies have more or less work that might well be performed by a locomotive crane with an increase in the effectiveness of labor. They also have more or less use for a steam shovel, a dragline excavator and various other power-driven machines. In many cases, however, they do insufficient of any one kind of such work to warrant the purchase of a machine intended solely for that particular operation.

To meet this condition as well as to fill the needs of contractors and others requiring various kinds of material-handling equipment the machine shown in the accompanying illustrations has been placed on the market. This device known as Excavator Crane No. 206, is primarily a locomotive crane and as such may be used with either a clamshell or an orange-peel bucket. Numerous attachments, however, render it available for many other operations.

Thus, equipped with a crane hook, it may be used for lifting heavy machinery, laying pipe, handling large sewer tile and the like, and with suitable slings it may be employed to advantage for moving ties, props or lumber in the timber or storage yard.

With a clamshell bucket the machine can, of course,

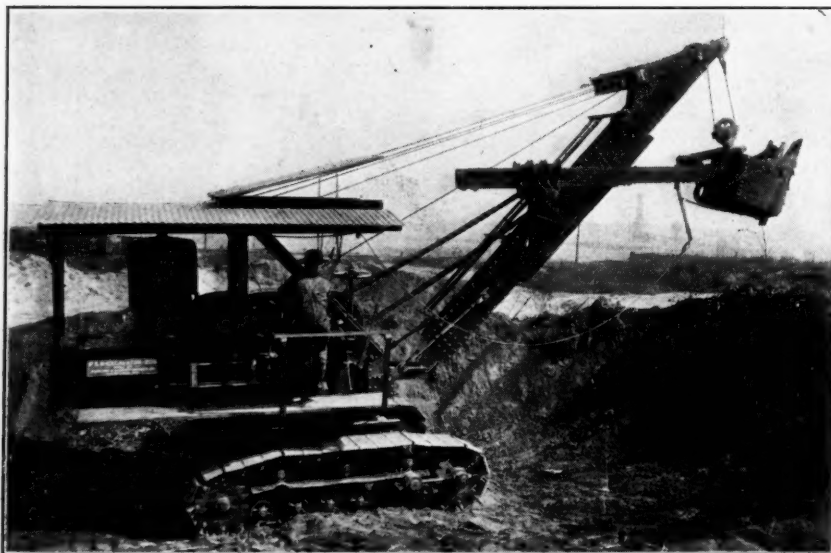


WORKING AS A DRAGLINE EXCAVATOR

Almost all the marvelous capacity of the army tank becomes available when the crane is mounted on a caterpillar tractor. Neither good roads nor expensive road-making excavations are necessary.

be used for moving coal from car to storage or vice versa, as well as for handling sand, gravel, crushed rock and the like. Such a bucket may also be used in excavation work, making roads, railroads, sidings, diversions and flood channels for streams, terraces for buildings sites and cellars for stores, offices and dwellings. With the orange-peel bucket this machine may be used for dredging or deep excavation such as the early stages of shaft sinking. Fitted with a Page bucket it may be used for digging or cleaning ditches, digging sewers, making foundation or cellar excavations or for stripping.

Equipped with a backfilling bucket this machine may be used to do shallow scraping or backfilling and similar work. With a skimmer scoop it becomes available for grading, leveling and like operations. Still another



As a Stripping Shovel

Attaching a dipper stick and a shovel makes the crane available for stripping and heavy foundation work. It will make roads, railroads, side tracks and reservoirs and will dig out waterways to straighten crooked streams or protect mines from flooding. So many are its uses and so easily does it perform them that it will not fail to find profitable uses at a mining plant.

As a Locomotive Crane

Thus rigged the crane will store coal, reclaim it or move it when it shows a tendency to fire spontaneously. It also will move ties and props or such other lumber as can be treated by dipping into treating tanks.



attachment converts the machine into a power shovel, making it available for stripping, digging large foundation excavations and, in fact, performing all the work ordinarily done by any other small, full-revolving shovel.

This machine is driven by a heavy four-cylinder vertical gasoline engine. This is of 50 hp. and is fitted with a heavy flywheel. It readily assumes heavy overloads. The crane proper is mounted on a caterpillar or corduroy truck of heavy construction.

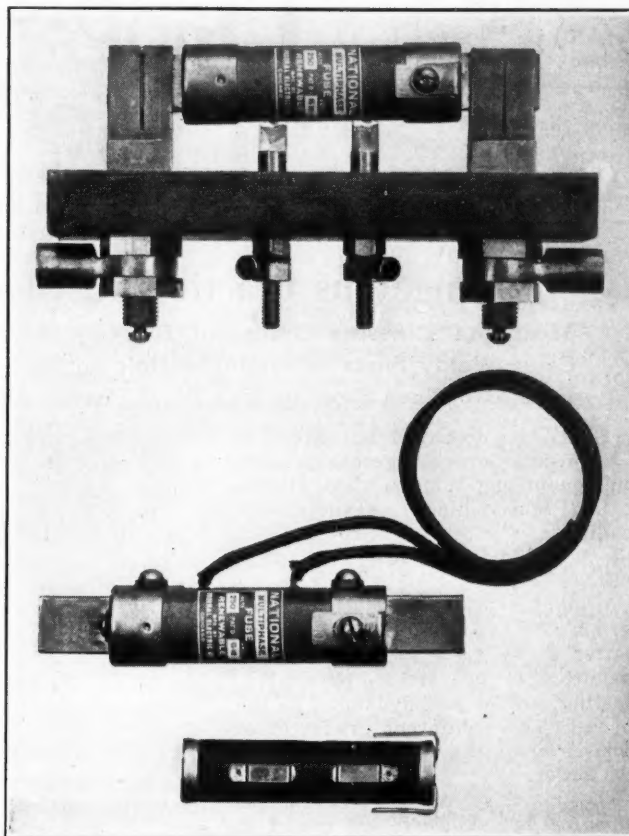
This excavator crane, manufactured by the Pawling & Harnischfeger Co., of Milwaukee, Wis., seems to be a veritable jack-of-all-trades.

Fuse to Prevent Motor from Running Single-Phase and Thus Burning Up

LARGE industrial plants have been seeking, and electrical manufacturers for years have been striving to produce, some means to prevent accidents to polyphase motors arising from their running single phase. Motor builders have devoted most of their experiments to the utilization of a relay in connection with the controlling apparatus. Inasmuch, however, as the blowing of one fuse does not operate a multiphase circuit breaker or overload release, the motor invariably continues to run single phase. More machines burn out from this cause than from any other.

To achieve the desired results the Federal Electric Co., of Chicago, has developed and patented a low-voltage auxiliary coil embodied within the cartridge case of a National renewable fuse. As this device can be placed in the container in only one position, it easily makes the necessary auxiliary connection with the fuse case itself. Leads are then brought out for connecting the inter-phase circuit in either delta or "Y." This is done either with wires attached to the case for front connection, or with auxiliary knife-blade connections placed on the back for connection on panels, switchboards, etc.

The National multiphase renewable fuse, as the new device is termed, serves two purposes. First, as a fuse it is so constructed as to withstand the high starting current of motors, yet hold the running load within the limits prescribed by the Underwriters' Laboratories, Inc. It is powder packed and provided with a metallic "tell-tale" indicator which shows upon the outside of the case the rated amperage of the fuse element contained. As the fuse is made for operation on multiphase circuits, it acts as a circuit breaker—that is, when one fuse blows, the auxiliary device causes one of the elements in one of the other cases to blow also, thereby breaking the circuit entirely and eliminating

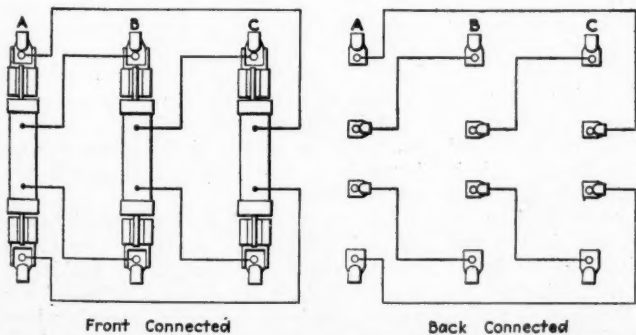


MULTIPHASE RENEWABLE FUSE AND CONNECTING CLAMPS

A powder-packed fuse which will withstand high starting current but will blow if the current is maintained for an excessive period.

the possibility of the motor running single phase. It is thus really a fool-proof time-limit fuse.

The two most frequent causes of motor failure are: (a) the overloading of fuses by placing two or more elements or one element of too great capacity in the case and (b) the operation of the motor on single phase. It is impossible to place more than one fuse element in the National fuse case and as this device assures the breaking of the circuit when one fuse blows, it means the highest protection possible to multiphase motors and circuits at only a slight additional cost over fuse of the ordinary renewable type. It is believed that no other device on the market will perform the same service. The chief advantage possessed by these fuses over circuit breakers is the fact that many of these latter devices function prematurely and in some instances fail to operate at all when they are most needed.



FUSE CONNECTIONS TO PROTECT THREE-PHASE MOTORS

When one fuse blows by reason of excessive load the current ceases to flow in all the phase circuits of the motor. Thus the fuse acts as a circuit breaker.

A *LIFE OF GEORGE WESTINGHOUSE* has been written by Colonel Henry G. Prout and will be published by subscription by the American Society of Mechanical Engineers. Mr. Prout succeeded Mr. Westinghouse as president of the Union Switch & Signal Co., having been his vice-president and general manager for eleven years, and therefore closely in touch with him. The first opportunity to buy the book will be offered to the members of the four principal engineering societies, of which the American Institute of Mining and Metallurgical Engineers is one. The book will be bound in half morocco and cloth, the price being respectively \$6 and \$3.50 postpaid. Subscriptions should be sent in not later than Oct. 31, 1921, to be ready early in December. A popular edition for about \$2.50, on cheaper paper and in a less expensive binding, will be published about February, 1922, by Charles Scribner's Sons. The book contains 330 pages and measures 6 x 9 in.



Problems of Operating Men

Edited by
James T. Beard



Dangerous Practices in Blasting

Mixing of Different Grades of Blasting Powder Liable to Cause Windy Shots—Charging a Hole with a Small Stick of Dynamite When Shooting with Black Powder Also Dangerous

ALLOW me to say a few words regarding some dangerous practices common among miners when blasting coal. I am reminded of these, after reading the letter on "Shooting Coal Off the Solid," *Coal Age*, Aug. 25, p. 302.

A number of mines in this district permit solid shooting. What makes the matter worse is the fact that they are permitted to use single- or double-F blasting powder and dynamite, as they choose. These different grades of explosives are given to the miner on his own order.

The majority of the miners, perhaps, are not skilled in the use of explosives. They do not realize the danger arising from their habit of mixing the different grades of powder when making up their cartridges. It is quite common for a miner to run short of single-F powder and finish charging the hole with a FF grade.

Of course, the FF powder being finer burns quicker and, in exploding, may blow the F powder from the hole in a partially burned condition. This causes a windy shot, since much of the force of the explosion is expended on the air.

SERIOUS RESULTS FOLLOW MIXING OF DIFFERENT GRADES OF POWDER

There may even result a blownout shot as the result of mixing two grades of powder. The finer powder exploding first may crack the coal, blow off the heel of the shot or, perhaps, blow the tamping. In any case, there results a tremendous burst of flame, which is projected into the air, often with disastrous results.

Where coal dust is present at the working face, this is liable to be blown into the air by the force of the blast and ignited by the flame of the burning powder projected from the hole. The result is a local explosion of dust or gas or both, which may or may not extend throughout the mine, according to the condition in the airways with respect to dust and gas.

Many mine disasters are caused by miners exercising poor judgment in placing shots and charging their holes. Failure to mine the shot or to locate the charge so that it will be free to perform its work; or the excessive use of black powder; or the mixing of different grades of powder in the same

charge has caused the death of many a miner and the injury of scores of others.

Attention has often been drawn, in *Coal Age*, to the danger of firing deadholes, in blasting. A deadhole is one drilled straight into the face of the coal, or one in which the charge is so located that the line of least resistance corresponds more or less closely with the axis of the hole. The firing of such a hole will cause a blownout shot.

"CRACKER SHOTS" DANGEROUS

When driving an entry, miners often make the mistake of using what they call a "cracker" shot, which is a hole drilled at or near the center of the heading and seldom mined or sidecut. Too often this so-called "cracker" is tamped with fine coal dust or slack, which adds greatly to the danger of firing the shot.

As a means of avoiding many of these dangers in blasting, allow me to suggest that coal operators should refuse to deliver more than one grade of powder to any miner. That should be a grade of permissible powder best adapted to the conditions in the coal. Owing to its flaming qualities, the use of black powder in blasting should be prohibited. Dynamite should only be given to a miner on the written order of the mine foreman, when it is required for the blasting of rock or similar purpose.

KEEP RECORD OF ALL POWDER DELIVERED

In my opinion, there should be kept at every powder magazine a strict record of the powder delivered to each miner. The record should state the date, kind and amount of powder given. On the sheet there should be space for the signature of the man receiving the powder. This record should be examined by the district mine inspector on each visit he makes to the mine.

Before closing, I will mention but one other dangerous practice, which is common at some mines. It is the habit of many miners to open a keg of powder by punching a hole in the end of the keg with a pick. The stroke of the pick often causes a spark that ignites the powder and the man is either killed or severely burned.

These and other unsafe practices show clearly that a large class of

miners are not awake to their own safety; and the fault does not rest with the miners alone, as a great number of mine officials fail to look into these matters and caution their miners against them. Perhaps, 10 per cent of our mine foremen perform their duties, by instructing the miners in regard to safe methods of doing their work, while the remaining 90 per cent are too busy to give it a thought.

Crawford, Tenn. OSCAR H. JONES.

Accident Bulletins

Appoint special committee to investigate and report on all serious accidents—Make bulletins specific and personal—Give copy to each man.

MY experience in impressing the average mine worker with a thought of his own safety has been very much the same as that described by a Johnstown superintendent, in a letter on this subject, *Coal Age*, Aug. 18, p. 262. The plan he suggests would have a decided advantage over the ordinary custom of posting a general bulletin in a conspicuous place.

Where a general bulletin fails of its object is in not being specific. In order to impress the mind of the reader a bulletin should picture an actual accident, naming the victim and giving the details as to how it occurred and in what way it might have been avoided. In other words, the bulletin must talk.

ACCIDENT BULLETINS MUST MAKE PERSONAL APPEAL

A mere notice drawing attention, in a general way, to a particular kind of accident is vague and imaginary and commonly fails to arrest the attention of the careless reader. On the other hand, when a bulletin names the particular person who was hurt or killed, it becomes real and enlists the interest of every one of us.

To accomplish results, the first essential is to arrest the attention and gain the sympathy and interest of a reader or listener. That is half the battle. The appeal must be personal. A copy of a bulletin reporting an accident in this manner and given to each man will be read and the story will go home in a way that the man will not soon forget.

One company I have in mind has a special committee render a report on every serious accident, after making a thorough investigation. Copies of the report, including a print showing how the accident happened, are sent to both the mine officials and the safety committee. Other copies are posted at

prominent points in and around the mine.

The suggestion of giving a copy to every mine worker impresses me as a good one. I have felt for some time that there is not enough serious thought given to carrying home to the mind of every worker the story of the accident and making it impressive.

WORK OF SPECIAL COMMITTEE MUST BE THOROUGH

The appointment of a special committee and the care with which they make their investigation will have such a tendency. The committee should take all the time that is needed to call and examine witnesses, and become thoroughly familiar with every detail of the surroundings. The more thorough the investigation, the more impressive will be the lesson taught by the accident.

There comes to my mind, just now, a certain coal field that is famous for many cold-blooded murders, every one of which has been given prominent space in the daily newspapers throughout the country. Is it not a strange fact that, for every murder committed in that field, there has been a fatal accident in the mine; and yet these have received but scant notice in the news of the day.

The subject is well worthy of serious thought and should call for action on the part of all mine officials who are anxious to safeguard human life. Only in this way can the number of fatal accidents be reduced and our mines made more safe for work.

Pikeville, Ky. GEORGE EDWARDS.

Make Mining Laws Complete

Safety in mining coal dependent on complete and clear mining laws—No need then to ask officials to go beyond what the law requires.

KINDLY permit me to correct the understanding of Ex-Mine Inspector, John Rose, as conveyed in his letter, *Coal Age*, Aug. 11, p. 218, where he quotes me as saying, "No mine officials should be asked to go beyond what is required in the law in making the mine safe." Mr. Rose should have completed my statement by adding the words "which is thought to be complete and clear."

I heartily agree with all that my friend has said and indorse his references to the sentiments expressed by Oscar H. Jones and R. W. Lightburn, regarding the importance of making our mines safe. We appear to differ, however, in respect to the means employed to that end.

The statement made in my previous letter, July 21, p. 101, was to the effect that no mine official should be asked to go beyond what is required in a law that is thought to be complete and clear. I want to emphasize the fact, which is uppermost in my mind, that it is of chief importance to make our mining laws clear and complete and then see that they are enforced strictly and all violations punished.

For 28 years previous to the passage, in 1913, of the new mining code, in Colorado, we had experience with a law that left much for the mine inspector and mine officials to do in making the mines safe.

COMPLETE LAWS REDUCE DEATH RATE

Previous to the enactment of the new law, the record for fatal accidents in our mines was 7.14 deaths per thousand men employed. Under the new law, this rate was reduced to 3.35 fatal accidents per thousand men employed, except for that one year (1917) when occurred the terrible mine explosion at Hastings, due to the opening of a locked safety lamp by a miner.

Let me say, here, that every mine official has his own standard of what is required to make the mine safe. On the other hand, he is employed by his company, primarily, to get out the coal. In general, under these conditions, the question of safety is restricted to what the law requires. Let me ask, What degree of safety does this portend if our laws regarding safety are not clear and complete.

NO VIOLATION WHERE LAW IS NOT COMPLETE AND CLEAR

In commenting on the uncertain reading of the Bituminous Mine Law (Pa.), Mr. Jones agrees with other writers in saying (May 26, p. 956) that the meaning being indefinite "warrants the conclusion that no law was violated," when the fireboss permitted open lights on a return current from a place generating gas. It is certain that where there is no violation of the law, there is no way to punish a miner who performs an unsafe act.

A mine inspector, finding conditions unsafe in a mine, can make a recommendation and report the matter to the chief inspector; but, unless there is a violation of the law, compliance with the recommendation is optional with the company. In nine cases out of ten, the inspector will find the condition unimproved on his second visit. The silence of the law on the matter makes the inspector helpless, since the law is his only weapon.

ADVANTAGE TAKEN OF NO PENALTY

As is well known, mining companies expect their officials to get out the coal with due regard to safety; but get it they must and every advantage is taken of a defective or incomplete or unclear mining law. Mine officials are too prone to take chances where there is no expressed prohibition or where no penalty is attached for a violation of the law.

How many foremen would make a ruling requiring that all coal must be mined to a certain depth, or sidecut, where the practice of the miners had long been to shoot the coal off the solid, although it was well known that so doing had caused many local explosions and men had been burned. It is here that the law must step in and prohibit this and other unsafe practices and provide a penalty for violation.

The president of the Mine Inspectors Institute of America, in his annual address, at St. Louis, July, 1915, stated that, in his opinion, one-half of the mine accidents could be prevented by living up to the requirements of the state mining laws and obeying the rules and regulations in force in the mines.

If this is true, how much more could be effected by making these laws clear and complete. Any one who claims it is impossible to frame a law that will suit the manifold unsafe conditions that continually arise in the mining of coal, is assisting to block the progress of legislation tending to insure a maximum degree of safety.

ATTENTION TO LEGISLATION NEEDED

The late James E. Roderick, then chief of the department of mines in Pennsylvania, once remarked: "We should give our full attention to this matter of suitable efficient legislation and, putting our shoulders to the wheel, see that such laws are enacted and enforced as will reduce the number of mine accidents to a minimum."

It has frequently been stated by the editor of this department of *Coal Age*, that there is a great lack of clearness in the mining laws of some states. He has drawn attention more than once to the need of specifying what is meant by a gaseous mine. I have in mind one operation, in Colorado, where gas has been generated, at intervals, in dangerous quantities. Again, the same mine would produce so little gas that open lights were allowed and used until the trouble returned.

MANY STRONG POINTS IN THE MINING LAW OF COLORADO

There are many strong points in the Colorado Mining Law, but I want to refer to one that specifies in a broad clear manner the distances apart that crosscuts may be driven. The law reads: "Crosscuts shall be driven as often as the inspector may order, but, under no circumstances, shall the working face be more than 60 ft. in advance of the air current."

In this respect the Colorado law differs from that in many states where the inspector is authorized to permit the driving of crosscuts at greater distances than that mentioned in the law if, in his judgment, it is safe to do so. This reminds me of an old story that runs somewhat as follows:

A little boy was swearing at his sister when a man approached and told him the devil would get him. The boy replied, as he had often been told, that "the devil was tied with a chain." "But," said the man, "that chain is long enough to reach around the earth." The boy quickly retorted, "Then he might as well be loose."

The answer of the boy points the application of my story to many of our mining laws, which are made so broad that there is no restriction and the law might as well not have been written on the statute books.

Farr, Colo. ROBERT A. MARSHALL.

Certification Upheld

Questions asked in the examination for certificates not simple—Uncertified men fail in many respects—Judgment of operators not without prejudice—Certified men preferred.

SELDOM have my feelings been aroused as when reading the letter signed W. A. G., *Coal Age*, Aug. 4, p. 181. The writer speaks of having an "experience of over 20 years, covering every coal field on the continent."

Though he claims to have come into close contact with both certified and uncertified mine officials, I am led to believe that he would do well to go over the ground again and revise many of his conclusions regarding the certification of mine officials.

ANALYZING THE QUESTION OF HARM IN GRANTING CERTIFICATES

Judging this writer by his statements, I am forced to conclude that his acquaintance with the work of examining boards is limited to a few instances where the simple nature of the questions asked have made those examinations inadequate for determining the qualifications of the candidates.

In the first place, he gives it as his conviction that the granting of certificates to many men is doing "more harm than good." His remarks would seem to imply that certifying a man gives him a swelled head.

Were it not that the remarks of this brother cast reflections on the ability and integrity of many examining boards, who meet each year to formulate the questions to be asked candidates in the examination, the letter might be passed by as expressing the opinion of an individual having but a limited knowledge of the situation.

Having myself attended many examinations of mine foremen, in the bituminous district of Pennsylvania, I can state without hesitancy that the questions asked in these examinations are not simple or such that any one could answer, as stated by this writer.

EXAMINING BOARDS VS. JUDGMENT OF COAL OPERATORS

In condemning the examination for certificates by styling the questions asked as simple and requiring but little study, the writer seems to contradict himself when he states, in the next breath, that he has known many men who would make splendid mine officials but who lack the necessary education that would enable them to pass the examination for a certificate.

Speaking of the selection of men for responsible positions, by operators, it seems to be the opinion of this writer that they are better able to judge of men's qualifications than a duly appointed examining board. He argues that the success of an operation depends on the ability of the men chosen to make good in the positions to which they are appointed.

It is my belief that 90 per cent of coal operators know less of the actual details of mining than an ordinary

mine worker who has had years of experience underground. This opinion is supported by the fact that many uncertified men occupying the highest official positions in mining would be unable to pass a mine foreman's examination.

OPERATORS BASE THEIR JUDGMENT ON ACQUAINTANCE WITH MEN

The judgment of an operator, in selecting a mine foreman, is necessarily limited to men who have been in his employ and whom he has known for several years. If a stranger applies to him for a job, the first question the operator will ask the man is: "Have you a certificate?"

All the men I have ever heard condemning the examination for mine-foreman's certificate are men who have never attended such an examination. They are mostly men who have not the ability or the ambition to study and fit themselves for higher work. Another class is composed of men who depend on their influence or pull to gain a position.

GOOD AND BAD MEN IN EACH CLASS

While agreeing with the writer when he admits that there are good and bad men, both certified and uncertified, my belief is that uncertified men fail, as a class, in many important respects such as the following: Not knowing the

state laws; being unacquainted with first-aid work; having no technical knowledge of the principles of mining, the properties of mine gases, the coal formations, etc.

Many uncertified men are unable to make out their own timebooks and estimates of supplies; a few even being unable to sign their own names to reports that must be made out for them by subordinates.

CERTIFIED MEN PREFERRED

My observation during the past several years has proved to me that the truly certified man is the one who is sought and preferred by the large majority of coal operators. In 99 cases out of 100, the successful coal operation is found to be in charge of a man who holds a certificate.

In my opinion, the difference between these two types of men is best described by saying the certified man is one who makes a study of his profession, while the uncertified man is one who makes a study of how to hold his job without any undue effort on his part being necessary. It is my hope that the next examination will see many uncertified men prepared to answer some of the so-called simple questions asked by the examining boards in all the states.

Mayport, Pa. JAMES THOMPSON.

Inquiries Of General Interest

Working a Vertical Seam of Coal

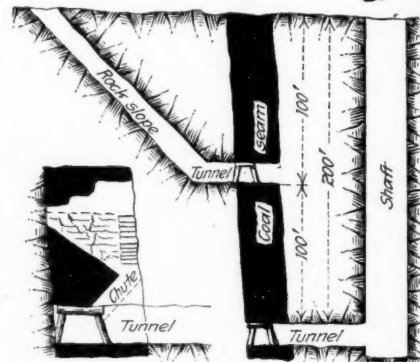
Coal Seam 10 to 15 Ft. Thick, Lignite, Nearly Vertical, Opened by Rock Slope and Cross-Tunnel, at 100-Ft. Level—Shaft Sunk 200 Ft., Cross-Tunnel and Levels Driven in Seam—How Best Worked

WE HAVE in contemplation the operation of a mine under the following conditions and would be pleased to have the benefit of the experience of *Coal Age* and its practical readers, in reference to the best method of working out the coal:

The seam is a very friable lignite coal, varying from 10 to 15 ft. in thickness, and stands practically vertical. It was originally opened by a slope sunk in the rock, on a pitch of 45 deg. When the slope had reached a vertical depth of about 100 ft., a cross-tunnel was driven to the seam. Headings or levels were then driven, in the seam, to the right and left of the cross-tunnel and an attempt was made to work out the coal by stoping, but with indifferent success.

A shaft has now been sunk to a depth of 200 ft., on one side of the vein, and a cross-tunnel driven to the seam. At this depth headings are driven, in the seam, to the right and left of the tunnel. The problem now is to determine the best method of working out

the 100-ft. pillar of coal between the two levels. The hanging wall of the vein is very good and there is but lit-



CROSS-SECTION OF VERTICAL SEAM AND DETAIL OF CHUTES

tle difficulty in holding it; but the foot-wall is poor and spalls off badly, making the coal dirty, as it is practically impossible to clean the coal in the mine. The friable nature of the coal makes it

difficult to produce a maximum percentage of lump, which is most desirable. The mine generates no gas. Compressed air is used for driving the puncher and radilax machines and operating the drills.

Many readers of *Coal Age* have had experience in the working of vertical seams and I feel sure can give good advice in reference to the present case. The chief difficulty that we have found is in mining the coal so as to keep it as free as possible from the rock coming from the footwall.

Denver, Colo. MINING ENGINEER.

In response to this request we are glad to present this proposition to readers of *Coal Age*, for their suggestions and advice. In order to make the

situation more clear we have prepared the accompanying sketch, which shows an almost vertical seam reached by a 45-deg. rock slope on the left and a vertical shaft on the right, cross-tunnels being driven, from the foot of each, to the seam. On the left is shown a detail section through one of the rooms or chambers, which are driven to the rise of the headings. A loading chute is first driven up from the heading, on an angle of about 30 deg. The chamber is then widened out in the manner shown in the figure, a manway being maintained along the hanging wall. This manway divides at the head of the loading chute, to permit the men to reach the heading below. The coal is stoped out at the face of chamber, the miner standing on the broken coal filling the chute.

6 = 27 sq.ft., the volume of air in circulation is $27 \times 150 = 4,050$ cu.ft. per min., which is less than one-third of the quantity required by law.

QUESTION—*Explain the symbols CH₄ and CO₂ and state what are their comparative weights.*

ANSWER—The atomic weights of these elements are carbon (C), 12; hydrogen (H), 1; oxygen (O), 16. Then, the molecular weight of methane (CH₄) is $12 + 4 \times 1 = 16$. Again, the molecular weight of carbon dioxide (CO₂) is $12 + 2 \times 16 = 44$. But, the law of gases assumes that all gaseous molecules, at the same temperature and pressure, have the same volume. Therefore, the relative weights of equal volumes of these gases are in the ratio 16:44. In other words, carbon dioxide is 2 $\frac{1}{2}$ times the weight of methane, volume for volume.

QUESTION—*What noxious gases are produced by fires and explosions of firedamp in mines?*

ANSWER—The principal noxious gases produced by fires and gas explosions, in mines, are carbon monoxide (CO) and carbon dioxide (CO₂). The former is a product of the incomplete combustion of carbon, which occurs in a limited supply of air. The latter gas is produced when the combustion is complete in a plentiful supply of air.

QUESTION — *Name six essential features of a good safety lamp for general work.*

ANSWER—1. The lamp should give a good light equally diffused on the roof and floor. 2. The lamp should be simple in construction, of few parts and strong and durable. 3. It must be capable of withstanding strong air currents. 4. A working lamp should be provided with a good lock fastening that will show any attempt to tamper with the same. 5. The lamp must not be too sensitive to gas and should contain an igniter for relighting the wick, in case it is extinguished. 6. The lamp should be light and portable, so as to be readily handled by the miner in his work.

QUESTION—*How many cubic feet of marsh gas will be required to be generated in a mine, per minute, to render dangerous a current of 30,000 cu.ft. of air per minute?*

ANSWER—The percentage of gas that will render mine air dangerous, in any given case, will depend much on the nature of the coal and the manner of mining with respect to the production of dust. In the mining of a highly inflammable coal, particularly in machine mining, the mine air may become dangerous when the proportion of gas in the air exceeds 1 per cent. On that basis, the generation of $30,000 \times 0.01 = 300$ cu.ft. of gas per minute would reach the limit of safety.

Again, if the coal is less flammable and the mine free from dust, 2 or even 2 $\frac{1}{2}$ per cent of gas may not prove dangerous. This condition would correspond to the generation of 600 or, perhaps, 750 cu.ft. of gas per minute.

Examination Questions Answered

Illinois Mine Examiners' Examination Springfield, May 2, 3, 1921

(Selected Questions)

QUESTION—(a) *What is the rubbing surface of a road 8 ft. 6 in. wide, 6 ft. 9 in. high and 3,000 ft. long? (b) What quantity of air would pass per minute in this roadway if the velocity of the air was 600 ft. per minute?*

ANSWER—(a) The perimeter of this airway is $2(8\frac{1}{2} + 6\frac{3}{4}) = 30\frac{1}{2}$ ft. The rubbing surface is then $3,000 \times 30\frac{1}{2} = 91,500$ sq.ft.

(b) The sectional area of the airway is $8\frac{1}{2} \times 6\frac{3}{4} = 57\frac{3}{8}$ sq.ft. The quantity of air in circulation is then $600 \times 57\frac{3}{8} = 34,425$ cu.ft. per min.

QUESTION—*If 55,000 cu.ft. of air per minute is passing through a circular shaft 10 ft. in diameter, what is the velocity per second? Also per minute?*

ANSWER—The sectional area of this shaft is $0.7854 \times 10^2 = 78.54$ sq.ft. The velocity of the air current is, then, $55,000 \div 78.54 = 700 +$ ft. per min.; or $700 \div 60 = 11\frac{2}{3}$ ft. per sec.

QUESTION — *If the weight of a cubic foot of air is 0.0766 lb. and the water gage is 1.5 in., what is the height of the motor column?*

ANSWER—A water gage of 1.5 in. corresponds to a pressure of $1.5 \times 5.2 = 7.8$ lb. per sq.ft. Taking the weight of a cubic foot of air as 0.0766 lb., this pressure corresponds to an air column of $7.8 \div 0.0766 = 101.8$ ft. The term "motive column" is improperly used in this question, as it always refers to the difference between two air columns, a downcast and an upcast column, expressed in terms of either the downcast or the upcast air.

QUESTION—*If the anemometer records a velocity of 500 ft. per min., in an intake airway having a sectional area of 60 sq.ft., and the thermometer shows a temperature of 32 deg. F., what will be the volume of air passing in the same airway, per minute, when the temperature has risen to 60 deg. F.?*

ANSWER—The original volume of air at a temperature of 32 deg. F. is $500 \times 60 = 30,000$ cu.ft. per min. The increase in volume, due to a rise of temperature from 32 deg. to 60 deg. F., is in the ratio of the corresponding absolute temperatures, which gives for the volume at 60 deg.

$$30,000 \left(\frac{460 + 60}{460 + 32} \right) = \frac{30,000 \times 520}{492} \\ = 31,707 \text{ cu.ft. per min.}$$

QUESTION—*The velocity of the current in a return airway is 150-ft. per min.; the airway is 4 $\frac{1}{2}$ ft. in height and 6 ft. in width. The number of men employed in the section ventilated by this current is 80, together with 8 mules and their drivers. Is the ventilation sufficient?*

ANSWER—The Illinois State Mining Law requires a circulation of 100 cu.ft. per min., for each man, and 500 cu.ft. per min., for each mule employed, in a mine where no gas is generated. Assuming this is a non-gaseous mine and that the eight drivers may be all in this section at one time, making 88 men and 8 mules, the volume of air required, to comply with the law must not be less than $(88 \times 100) + (8 \times 500) = 12,800$ cu.ft. per min. The sectional area of this airway being $4\frac{1}{2} \times$

British Coal Industry Faces New Crisis; May Consider Wage Readjustment

BY C. H. S. TUPHOLME

HOPES expressed by some owners and miners a short while ago of a speedy recovery in the British coal trade have not materialized; in fact a new crisis seems likely to arise soon. That section of the settlement of the coal dispute made in June, covering a temporary period, came to an end Oct. 1. As a result of the failure of the industry to re-establish itself, especially in the matter of exports, the new National Wage Board must soon consider a readjustment of wages on the basis of the figures for the past three months.

The State subsidy was withdrawn on Sept. 30 and it must now be ascertained whether there is any surplus from this £10,000,000. Many districts have not drawn on this fund at all. It is significant that the chief exporting areas, Northumberland and South Wales, have drawn on the fund to the largest extent. This subsidy was intended to obviate any reductions greater than 2s. per day in July, 2s. 6d. per day in August, and 3s. per day in September.

In some districts it was not found necessary to apply the maximum wage cuts. In the Derbyshire, Yorkshire, Leicestershire, Warwickshire and Notts areas a reduction of only 1s. 5d. per day was enforced, and during September (the figures for which are based on the July audit) this wage cut was reduced to 1s. 1.5d. Scotland, too, is in a fairly favorable position. These districts, which employ roughly half the total engaged in the industry, were independent of the subsidy.

The other half of the British coal industry was not so well off from either the State's, the owner's or the workers' viewpoint. The full reductions were put into operation in South Wales and Monmouth, employing 271,000 men; Durham, employing 171,000 men; Lancashire, Cheshire and North Staffordshire, employing 140,000 men, and Northumberland, employing 62,000 men.

As far as the South Wales district is concerned, the export trade has not been so badly hit as in Northumberland and Durham, where the entire Baltic trade has been lost. In Northumberland alone 3,000 men are idle, this in spite of exports reaching 3,100,000 tons in August, compared with 1,850,000 tons in August, 1920.

As the majority of observers had foreseen, the seven-hour day is a mistake, the consequent drop in output reaching as high as 20 per cent. Except in the "hot-head" districts the miners are beginning to realize what is happening, and Frank Hodges recently urged the miners to "put their backs into it," at the same time expressing the hope "that the doctrine once preached in South Wales of getting maximum wages for a minimum of work would cease."

It is not expected that any labor trouble in the form of a direct rupture will occur, in view of the prevailing agreement, which can be repudiated only on three months' notice, not to be given before Sept. 30, 1922. The worst that can happen is a gradual closing of the British pits, with a corresponding increase in miners' unemployment.

A further step in the break-up of the Miners' Federation of Great Britain is indicated in the secession from this body of the National Federation of Colliery Enginemen and Boilermen, usually known as the "safety men." The recent ballot taken by this union resulted in an overwhelming vote in favor of severance from the large federation, and accordingly the safety men will now manage their own affairs instead of being a "district" of the Miners' Federation. The Durham County colliery enginemen also have severed their connection with National Federation of Enginemen.

In order to reduce unemployment and short time many Lanarkshire miners have offered to accept 10s. per shift instead of 14s. 6d., so as to keep the pits going. It is hoped by this means to reduce prices and recapture part of the lost European trade.

The owners have posted bulletins at all the collieries in

North Wales to the effect that the pits will be closed immediately and will not be reopened until further notice. The reasons for this action are stated by the owners to be high wage and production costs.

Appoints Trustees to Board of Directors To Facilitate Reading Dissolution

A CHANGE in the handling of the transfer of the stock of the Philadelphia & Reading Coal & Iron Co. under the terms of the dissolution prescribed by the U. S. District Court for the Eastern District of Pennsylvania has been ordered by the Attorney General. In a formal statement the Attorney General says:

"The decree of dissolution entered in the anti-trust suit against the Reading Company and others provided that the stock of the Philadelphia & Reading Coal & Iron Co. now owned by the Reading Company should be placed in the hands of trustees, pending the final disposition thereof to persons not connected with the Reading Company. At the time the decree was entered Newton H. Fairbanks, of Springfield, Ohio, and Joseph B. McCall, of Philadelphia, were appointed trustees under the decree.

"Since that time a committee representing certain of the common stockholders of the Reading Company has taken an appeal from the final decree to the Supreme Court, and while such a decree does not constitute a stay of all proceedings under the decree, the uncertainty attending such an appeal renders it inadvisable that any step be taken in carrying out the plan of dissolution which might later cause embarrassment or delay in case the plan should be modified materially by the Supreme Court.

"In lieu of the transfer of stock of the Philadelphia & Reading Coal & Iron Co. to the trustees, Messrs. Fairbanks and McCall have been elected members of the Board of Directors of that company. These gentlemen have consented to serve and their election results from the desire of the government and the Reading Company to carry out in spirit, if not in form, the terms of the plan of dissolution approved by the U. S. District Court for the Eastern District of Pennsylvania."

Attorney General Daugherty has given his assent to postponement of the Reading dissolution plan, pending Supreme Court action on an appeal made by stockholders from the findings of the District Court in Philadelphia.

Out Eighteen Years, Ash-Bank Fire Revives; Explosion Occurs That May Ignite Mine

A FIRE that may have fallen into a mine and set the coal burning is causing some apprehension in the Heidelberg No. 2 Colliery of the Lehigh Valley Coal Co., near Pittston. About eighteen years ago a fire occurred in an old ash bank south and east of the Heidelberg shaft. This bank was from 20 to 30 ft. thick. It was thought to have been entirely extinguished at that time, no sign revealing any activity whatever. Quite recently fire was discovered at a point within 80 ft. of the shaft.

To extinguish the fire a ditch was dug to the ashpit and water was run through the ditch onto the fire. Unfortunately when the water fell on the heated mass below an explosion took place, breaking down the surface measures above the Pittston bed. The cover here is about 20 to 30 ft. thick. It is believed that the burning ashes fell into old workings of that measure, where the thickness of the seam is about 10 ft. Streams of water were poured into the crater formed by the explosion. The fire, however, gained headway and spread toward the top of the shaft, where about 20 ft. of rock had been dumped. If this rock should prove to be sandstone taken from the shaft, there will be no danger of the fire spreading in that direction. If the fill is of slate or bone there is real danger. The Lehigh Valley Co., in order to be safe, will dig a ditch of sufficient depth between the fire and the shaft to cut off the fire and confine it.

Different Classes of Items Not to Be Grouped Under, One Head in Keeping Coal-Operation Costs*

Charges to Capital, Maintenance and Depreciation Sometimes So Closely Interwoven That Confusion Results—Charging Insurance and Taxes When Paid Unsound Practice—Maintenance Reserve Should Be Formed with Opening of Mine

By R. W. GARDINER†

IN coal-production cost keeping it is well to consider carefully the question of charges to capital, because these are generally so interwoven with the charge to maintenance and the question of depreciation as frequently to lead to some confusion. All development work after the mine is a mine is a proper charge against the cost of operations. This statement is based on the theory that no charges should be made to capital account unless the expenditure either results in an increased production or decreased cost. This same statement holds true in regard to the laying of additional track, to the extension of the ventilating system, to the purchase of new mine cars, or even additional mine locomotives.

The mere fact that the operation of the mine has resulted in the face being further removed from the mouth of the mine or the bottom of the shaft does not increase the value of the mine one cent. It is plain that if a mine with one mile of main entries can transport all the coal produced with a certain number of mine cars and mine locomotives, when the mine entries have reached two miles it will take more mine cars and more mine locomotives to get out the same quantity of coal, and yet the value of the mine is not increased. The cost of production has gone up instead of coming down, due to the increased haul, while the production is practically the same.

WHEN TO CHARGE INSURANCE AND TAXES

Insurance and taxes need no explanation, but the practice of charging these items when paid is not sound practice, as it will cause the cost figures to show large fluctuations which really do not exist.

The coal-mining business unquestionably is a hazardous one. The risk of some unforeseen happening which will cause a loss, and against which it is impossible to insure, always is present. In the past operators have attempted to take care of this risk by having the sales department consider it in making prices, with the result that it often was ignored. The present recommendation is that a certain fixed amount per ton be charged into cost to cover this risk and be credited to a contingent reserve account. The credit balance in this account would represent the amount of premium paid for insurance if it were possible to get insurance.

As conditions force the operator to carry his own insurance, he is perfectly justified in setting up such a reserve. No sane business man would attempt to carry his own fire insurance or his own compensation insurance without setting up some reserve, and the mining risk would seem to come within the same class. The cost of contingencies which should be charged against this account would cover any extraordinary happening which causes a loss, such as an extra heavy fall, a squeeze, an unexpected fault, or any loss which the insurance is not sufficient to cover.²

*Third and final installment of an article on coal-production costs based on a paper read before the Pittsburgh Chapter, National Association of Cost Accountants. Preceding installments appeared in *Coal Age*, Oct. 13 and 20. Copyrighted by National Association of Cost Accountants.

†Commissioner Pittsburgh Coal Producers' Association, Pittsburgh, Pa.

The system of the National Coal Association (page 8) contains the following statement on this point: "The drawing of distinctions between capital and operating expenditures, in the accounting involved in permanent enterprises, is a favorite field for discussion among accountants, but in the case of coal-mining or other wasting enterprises, experience teaches that the field for discussion, if indeed there be any, is extremely limited." Some additional comments in regard to capital and operating charges appear in the system.

The necessity of carrying a contingent reserve account on the books is emphasized on page 14 of the system of the National Coal Association.

The other general expenses of the business, such as salaries of officers, salesmen and clerks, rent, etc., should be divided between general expense and selling expense. The salaries of any person, whether officer, salesman or clerk, who devotes his time to that branch of the work is charged to selling expense, and the balance to general expense. This, of course, does not apply to the general operating department, the salaries and expenses of which should be charged to operating, although this figure should not be given to the mine superintendent.

ESTABLISH MAINTENANCE RESERVE FROM FIRST

The establishment of a maintenance reserve is something which has not as yet been considered by a majority of the operators. Maintenance starts as soon as the mine begins operation, although there may be no expenditures for this purpose until some time later. If a maintenance reserve is built up at a predetermined rate in cents per ton, and charges made to this reserve as expenditures occur, it will have a tendency to avoid artificial fluctuations in cost. For example, a tippie must be painted from time to time. One painting will last for two or three years. If the cost of painting the tippie is charged in one month, the cost for that month will be out of proportion, while if the maintenance reserve method is followed there will be a reserve against which this cost can be charged. The same holds true in regard to replacements.

The best method in general use at the present time is to handle such items through a deferred charge account and spread it over the ensuing period of two, three, four, six or any number of months which may seem advisable. Unless the charge is very large in amount this method will not result in heavy fluctuations, and as a certain number of expenses of this kind are sure to be necessary sooner or later, conservative accounting would seem to demand that provision be made for them in advance rather than to wait until the expenditure has been made. Another point in this connection is that when equipment is new, expenditures for maintenance are bound to be light and the cost figures will necessarily be low. This condition would enable a new mine to undersell an older mine, whereas this would not be the case if proper provision had been made from the time the mine began operations to take care of the inevitable charges to maintenance. The coal coming from the new mine would pay the same share of maintenance as the coal coming from the same mine when the mine was several years old.

The Treasury Department will not allow any reserves except depletion and depreciation to be deducted from income. This ruling, however, need not prevent the operator from carrying these items on his books for his own protection. On the other hand, the Treasury Department allows interest on borrowed money as a charge against income, while in determining costs this item cannot be taken into consideration.

DIVIDE EXPENSES INTO THREE CLASSES

In the analysis of all the items of expense which comprise the cost of production, those items which are fixed on a per-ton basis and which are not affected by production, including labor as well as other expenses, should be kept in one class. A second class would consist of those items which are only slightly affected by production, and the third class of those items which are practically fixed on a monthly or annual basis and are affected in direct ratio to increases or decreases in production. This subdivision of expenses will be found to be of incalculable value to

the sales department in the determination of a fair selling price.

In conclusion, one word of advice might be offered to any accountant who is called upon to operate or install a system for a mining company or to make any changes in a system already established. In the first place, he must thoroughly familiarize himself with the practical side of the business, particularly from an operating standpoint. He must make up his mind which of the departments is going to make the greatest practical use of the cost system and plan his work so as to give that department the information it needs as promptly as possible and in the most serviceable form.

He should not provide for obtaining any information unless he has a very well defined idea in his own mind as to the purpose for which that information is to be used and its value to the company. Finally, in making up statements showing the operation of the business and its condition, he should be careful to avoid the mistake that so many have made, and are still making, of grouping different classes of items under the same general heading. Statements have been used which have included under one head items properly chargeable against cost, items chargeable against income before net income is determined for taxation purposes, and items such as income and excess profits taxes, which must necessarily be deducted from net income.

Kentucky Institute to Hold Exposition and Issue First-Aid Certificates

BY E. C. ROGERS*

A BIG constructive program for future work marked the annual meeting of the Kentucky Mining Institute, which was held at the Phoenix Hotel, Lexington, Ky., Friday and Saturday, Oct. 7 and 8, the president, Prof. Charles J. Norwood, presiding. There were about one hundred members and visitors present. The address of welcome was delivered by Barney J. Treacy, president of the Lexington Board of Commerce, who spoke of the proximity of the vast coal fields of eastern Kentucky to Lexington and the growing interest of the citizens of Lexington in their development. He emphasized the cordial feeling existing between the mining towns and the capital of the Blue Grass State and of the number of operators who have established their headquarters and their homes in Lexington in the past few years.

President Norwood, in his report, reviewed the work and aims of the institute, and while he did not minimize or disparage the value and importance of the first-aid contests, which has been the principal feature of the institute meetings in the past, expressed the opinion that these contests should not be allowed to overshadow other matters of equal or more importance, and that more time should be given to the discussion of practical matters pertaining to mining. He recommended that the constitution of the institute be amended at the next meeting, that the state be redivided so as to increase the number of districts, thus adding to the number of vice-presidents, expressing the belief that with more districts and a strong committee, headed by a vice-president, in each district, more interest could be aroused and a larger membership assured.

W. P. Bovard, of the Ohio Brass Co., Mansfield, Ohio, started the discussion on rail bonding in coal mines by a paper on "Electric-Arc Welding." Howard N. Eavenson, formerly chief engineer of the United States Coal & Coke Co., at Lynch, read a paper on "Some Peculiar Values of Eastern Kentucky Coals and the Proper Methods to Realize on Them." L. Haigh, of the Hadfield-Penfield Steel Co., of Bucyrus, Ohio, presented a paper on "Handling of Coal Shales from Mines," exhibiting in connection with it samples of brick, building and paving and hollow tile, made from the waste of the mines of the Kentucky Block Cannel Coal Co., at Cannel City, Ky. A. H. Wood, of the Harlan Co-operative Coal Co., started the discussion on

modern coal mining in Kentucky by a paper, entitled "Opening an Up-to-Date Coal Mine."

The entire night session or smoker was taken up by the discussion as to the policy of the institute toward first-aid training and contests and as to the means which should be taken to revive interest in such training, especially in the western Kentucky field. It was decided to appoint a committee of safety, having on it the chief inspector of mines as chairman, a representative of the Associated Companies, the president and vice-presidents being ex-officio members, thus procuring a member in each district, to promote, encourage and assist district contests. It also was provided that teams making 75 per cent in these events should receive certificates, under the seal of the institute and signed by the president, that the winning teams be sent to the annual state meet in Lexington, and that the winner at that contest be sent to International First-Aid and Mine-Rescue Meet, wherever it might be held.

It was decided that the institute, in conjunction with the Lexington Board of Commerce, hold at the time of its next annual meeting an industrial and mining exposition such as was held recently in Huntington. Conrad J. Neekamp, secretary of the Northeast Kentucky Coal Association, was made chairman of a committee on arrangements for such an exposition, and immediately appointed the following to assist him: R. A. Hord, Lexington, secretary of the Hazard Coal Operators' Association; T. J. Barr, professor of mining and metallurgy, University of Kentucky; E. R. Clayton, secretary of the Harlan Coal Operators' Association; J. E. MacCoy, secretary of the Southern Appalachian Association, Knoxville; W. G. Duncan, Jr., president of the W. G. Duncan Coal Co., Greenville, Ky., and F. Paul Anderson, dean of the College of Engineering, University of Kentucky.

The following officers were elected: President, A. G. Spillman, St. Bernard Mining Co., Earlington; secretary-treasurer, Mrs. Elizabeth C. Rogers, Lexington. The vice-presidents will be T. E. Jenkins, Sturgis; W. G. Duncan, Jr., Greenville; C. S. Nunn, Marion; Lawson Blenkinsopp, Lexington; C. W. Connor, Esco; D. A. MacWhirter, Pineville; Joseph Cain, Stearns; William S. Leckie, Aflex; H. S. Carpenter, Jenkins; R. A. Hamilton, Mansfield, Ohio; H. A. Bullock, Lexington; J. E. Jones, Beattyville.

The safety committee will include Lawson Blenkinsopp, chief inspector of mines, and D. A. MacWhirter, of the Associated Companies. C. Frank Dunn will be chairman of the committee on exhibits, publicity and displays. The committee on the mechanical loading of coal will consist of A. H. Wood, Lexington; J. E. Butler, Stearns; N. G. Alford, Pittsburgh, and the committee to investigate the rescoring of Kentucky coals will comprise: Howard N. Eavenson and A. H. Wood.

September Coal Receipts at Duluth-Superior Less Than Year Ago; Season Total Higher

COMPARATIVE figures of receipts of coal at Duluth-Superior for September and for the year to Sept. 30 and for the corresponding period last year were:

	1920		1921	
	Anthracite	Bituminous	Anthracite	Bituminous
Northwestern.....	46,000	193,500	54,700	59,300
Berwind.....		79,600		71,900
Pittsburgh.....	14,600	122,100	28,800	30,000
Carnegie.....		63,300	7,650	10,340
Hanna.....	10,500	31,000	22,070	32,790
Reeves.....	13,500	12,200	8,810	12,180
Boston.....		19,100		
Inland.....		62,000		78,150
Clarkson.....		85,200		
Northern.....		21,200	8,000	23,060
Zenith Furnace.....		87,000		6,500
Philadelphia & Reading.....	17,700	7,000	7,290	
U. S. Steel Corporation.....		173,200		104,500
Reiss.....	8,000	48,800	21,210	42,200
Pursglove.....		12,700		20,240
Lehigh.....	24,000		17,270	
Great Lakes.....		41,000	6,460	166,000
September receipts.....	134,300	1,058,900	182,260	657,170
Total to Sept. 1.....	857,470	3,050,900	1,198,205	529,256
Total to Oct. 1.....	991,770	4,109,800	1,380,465	7,186,426

Anthracite receipts in excess of last year, 388,695 tons.
Bituminous receipts in excess of last year, 3,076,626 tons.

*Secretary-treasurer, Kentucky Mining Institute.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

THE last thirty days have been characterized by slowly improving sentiment and by some expansion of production, according to a bulletin on business conditions issued by the National Bank of Commerce in New York. "The most marked gains," the bulletin continues, "have naturally been in those lines where recovery has been the longest delayed. Bituminous coal production is increasing, capacity, and activity in the build running at about 40 per cent of the iron and steel industry is nowing trades is well maintained.

"Autumn buying is reflected in an improved retail dry-goods trade. It is noteworthy that this betterment is more marked in rural districts than in industrial centers. This is clearly the result of the marketing of cotton and grain crops at fairly satisfactory prices.

"Wholesale prices of a number of raw materials have advanced since Sept. 15. There is no doubt that the improvement which has thus far taken place is more or less seasonal in character, but it is nevertheless true that the progress made toward normal business is sound. "The United States is not sufficiently dependent on foreign markets to justify the belief that business recovery in this country must await recovery abroad. At prices determined in the international markets American raw materials for export will find an outlet. By far the greater part of the entire manufactured product of the country has always been sold at home and as price adjustments are completed, the domestic market will again absorb the major portion of our production.

"It is true that the buying power of the domestic consumer has been much curtailed. High taxes, declines in the prices of agricultural products and widespread unemployment have reduced the buying ability of a large part of the population, and high rents, high fuel costs and high transportation charges have operated in the same direction.

"The American consumer, however, has suffered no material permanent curtailment of purchasing power. Goods of all kinds in large volume can be sold in every part of the United States today, if they are staple in character and if prices are such as to represent real values to conservative purchasers. As the volume of goods thus sold expands, employment will automatically increase and, in turn, new purchasing power will develop. The domestic market assures the American producer of an outlet."

Freight-Car Loadings on Upturn

Reports received by the American Railway Association from railroads of the country show that 906,034 cars were loaded with revenue freight during the week ended Oct. 15, an increase of 10,294 cars over the week before. This was the largest number loaded during any one week since Nov. 13, 1920, but was 112,505 less than for the same week last year and 66,044 cars below same week in 1919. The biggest gain was in loading of coal, which totaled 19,506 cars during the week, or an increase of 11,167 cars over the week

before. This was 35,165 cars less than loaded for the same week in 1920 and 25,910 less than during the same week in 1919.

Idle freight cars on American railroads totaled 316,377 on Oct. 15, or 29,543 less than on Oct. 8. Of this number 121,944 were serviceable cars which could be put into immediate use if transportation demands warranted, compared with 142,970 the week before, or a reduction of 21,026 cars. The remaining 194,433 were cars in need of repairs. The latter figure, however, was a reduction of 8,517 from Oct. 8.

Eleven Industries Increase Workers

Comparative data issued by the U. S. Department of Labor Statistics for September and August, 1921, show that in eleven industries there were increases in the number of persons on the payroll in September compared with August, and in three a decrease. The largest increases are 4.8 per cent in hosiery and underwear and in cigar manufacturing, and 4 per cent in car building and repairing. Men's ready-made clothing shows a decrease of 0.9 per cent in the number of employees; automobiles, a decrease of 0.7 per cent, and boots and shoes a decrease of 0.3 per cent.

Laconia Car Shops on Full Time

The Maine Central Railroad Co. recently placed a \$500,000 equipment order with the Laconia Car Co., Laconia, N. H. The plants at Laconia have reopened and will be run on full time for several months.

Nebraska Has Few Idle

Unemployment in Nebraska at this time is not a serious subject. There appears to be work for everyone who cares to work at a living wage, Governor S. R. McKelvie has reported to Secretary of Commerce Hoover in reply to the latter's questionnaire on unemployment. Governor McKelvie pledged the agencies of the state to bring about readjustment of unfavorable conditions.

Predicts 75 P.C. Auto Activity

John N. Willys, president of the Willys-Overland Co., addressing the Eastern sales organization of the company, stated that he did not look for more than 75 per cent of normal business in the automobile line for 1922, but that the Willys-Overland Co. was in shape to get 100 per cent of its share. This, he stated, would be helped by the fact that the Willys-Overland product was in the price class that would total 60 per cent of the entire sales in the industry. The export business, he said, was improving.

Textile Mill Goes on Full Time

The Henderson (Ky.) mill of the Consolidated Textile Corporation expected to resume operations on full time Monday, Oct. 31, the wage differences with striking employees having been adjusted. Of the 50,000 spindles approximately one-quarter have been in operation for several weeks and sufficient employees to enable 50 per cent operation have applied for work at the mill. The Pilot Cotton Mills at Raleigh, N. C., which have been operating two days a week, owing to power shortage, have resumed operations on full time.

Central Pa. Non-Union Mines Gain Heavily In Output from Union Operations

LOADINGS of coal in cars by union and non-union mines in the central Pennsylvania bituminous coal field from December, 1920, to September, 1921, both inclusive, are shown in the subjoined table. Using December (1920) production as a basis for calculation, the table discloses the loss of business from the mines operating under the present union wage scale to those which have adjusted their wages to the 1917 basis. The loss for the month of September shows that if the mines operating under the union scale had maintained their ratio in the district they would have produced 45,571 carloads instead of 38,216 and the non-union mines would have produced 18,320 carloads instead of 25,725. In other words, the mines that have made the wage adjustments have taken about 7,335 carloads of business from the mines that have not made the adjustment.

During the last five years this district has been the source of 10.5 per cent of the total production of the United States. If this had been maintained during September the district would have produced 10,377 carloads. The union mines have suffered another loss from the district of 10,377 carloads—a total of 17,732 carloads, or 886,600 tons—as compared with a loss of 657,400 tons in the month of August. Therefore the Central Pennsylvania field during the first nine months of 1921 should have produced 33,297,562 tons, while the actual production was 28,997,361 tons.

CARS LOADED—Y 870 UNION AND 231 NON-UNION MINES,
CENTRAL PENNSYLVANIA BITUMINOUS FIELD

Month 1921	Number of Cars Loaded			Per Cent of Total Loaded by		Per Cent of December Cars	
	Union	Non-Union	Total	Union	Non-Union	Union	Non-Union
December..	70,152	28,277	98,429	41,875	71.27	28.73	.....
January....	47,831	23,395	71,226	24,436	67.15	32.85	68.18
February....	40,353	19,608	59,961	20,745	67.30	32.70	57.52
March.....	40,241	20,255	60,496	19,986	66.52	33.48	57.36
April.....	33,264	17,166	50,430	16,098	65.96	34.04	47.43
May.....	38,163	21,368	59,531	16,795	64.11	35.89	54.40
June.....	38,355	25,445	63,800	12,910	60.12	39.88	54.67
July.....	34,153	22,363	56,516	11,790	60.43	39.57	48.68
August.....	38,772	24,020	62,792	14,752	61.75	38.25	55.27
September..	38,216	25,725	63,941	12,491	59.77	40.23	54.48
Totals...	419,500	227,622	647,122	191,878	64.83	35.17	.....

Open-Shop Movement Gains Some Headway In Northern West Virginia

IN MONONGALIA COUNTY the movement to operate the mines open shop has gained more headway than in the other fields of northern West Virginia, although even in that county only a small proportion of the companies have made any attempt to operate their mines on that basis. It will be recalled that the Bethlehem Mines Corporation, which purchased the holdings of the Elkins estate, was the first to declare that its mines would be operated open shop. Other companies, taking their cue from the Bethlehem Mines Corporation, also announced that they would eliminate the check-off, and proceeded to do so. A strike followed in the Decker's Creek valley, but it did not materially affect production and was a failure.

Technically, however, it has been in effect since July, 1920. Until recently there were still miners, formerly employed by the Rock Forge and Connellsville Basin mines, who were drawing benefits but it is now generally understood that the United Mine Workers have ceased making these payments. The men on strike belonged to what is known as the Dellslow local, but the number of men out of employment has steadily dwindled until it reached 11, who have been receiving strike benefits ever since the strike began more than a year ago.

The Dellslow local was organized by Pat Blevins, who became its president and, becoming implicated in much trouble, was shot and killed last winter.

Although the Rock Forge and Connellsville Basin mines have been allowed to work unmolested for some time, there has been trouble recently at the Almina mine of the Sturm Coal Co., which has been operating on an open-shop basis.

According to officials of the company, the non-union miners at this mine have been visited by delegations of United Mine Workers, and after being threatened have departed for points unknown. That has occurred not once but several times. Nevertheless the company states that it will continue to operate on an open-shop basis and other operators have announced that they soon will resume operation on this system and will pay the 1914 scale of wages.

Two United Mine Workers Convicted of Shooting Up Mohawk, W. Va.

THE State of West Virginia obtained its first convictions in the trial of twelve men of a mob of United Mine Workers who were charged with shooting up the mining town of Mohawk, McDowell County, W. Va., on the morning of Aug. 21, 1920. The men were indicted first before the Grand Jury of McDowell County, where the alleged offenses were committed, but the cases were transferred to the Greenbrier County Court to avoid the effect of local sentiment and possible intimidation.

Eighteen men were originally apprehended, but six turned state's evidence. The remainder elected to be tried separately, and John Collins faced the ordeal first. The state's case was based on the testimony of the six men mentioned. The defense tried to prove an alibi with nine witnesses, three brothers of the defendant and one a brother-in-law. All but three had lived in the tent colony maintained by the United Mine Workers of America at Matewan. John Collins flatly contradicted the testimony of some of his own witnesses.

John Collins being convicted, a lawyer named Cline was next for trial, but he had skipped his \$2,000 bail. A capias was issued for him and he was arrested and is now in jail. John Caudill also was convicted. He acknowledged his participation but said he was forced to do what he did by members of the organization. Both Collins and Caudill were sentenced to the penitentiary for two years. The cases against the rest of the defendants were set for trial Monday, Nov. 21, 1921.

Alien Miner, Member of Union, Driven from Home in Indiana, Asks Big Damages

CHARGES of intimidation and other unfair and illegal acts growing out of the mob action in June against foreign-born miners employed by the Ayrshire District Collieries Co., of Francisco, Gibson County, Indiana, are contained in a suit for \$50,000 damages filed recently in the Federal court by Pete Krechak, of Francisco, against H. R. Barnes and eighteen others. The plaintiff says he was driven from his home and family by a mob June 10, and that he has been without employment and separated from his family and possessions since that time. The bill of complaint was filed by Curtis G. Shake and Joseph W. Kim-mell, lawyers, of Vincennes, Ind.

The complaint says Mr. Barnes is a Baptist minister who recently moved to Corydon, Ky. Other defendants are W. F. Chappell and W. Samuel McConnell, merchants of Francisco; George A. Nollon, Postmaster of Francisco; A. J. Schuh, proprietor of a brickyard; Ora T. Downey, a merchant; Corlis R. Maxim, a school teacher; Joshua Stapleton, town marshal; Jerry Schaffer, chairman of the Town Board; Floyd Caniff, Delle Steele, Drysdale P. Stapleton, Earl Hinkle, Frank Bolin, Hubert S. Kelley, James Harbinson, Charles L. Kelley, Joseph Messersmith and Raymond McConnell. The last ten in this list are charged with having been members of a mob that drove Krechak from his home.

Krechak asserts that he is a member of the United Mine Workers of America and that he is a subject of the Kingdom of the Serbs, Croats and Slovenes, and that he lived in Chicago until June 1, when he obtained employment as a miner with the Ayrshire District Collieries Co. at \$7.50 a day. He asserts that the defendants and other persons held a mass meeting at the public school building in Francisco June 9 for the purpose of deciding on ways and means of forcing him and his family to leave the community.

Labor's Interpretation of Rail-Strike Settlement May Be Decisive Factor in Possible Coal Strike

BY PAUL WOOTON
Washington Correspondent

OFFICIAL Washington literally heaved a sigh of relief last Friday morning when the railroad strike order was countermanded. It was a case of the night being blackest just before the dawn, as it is known to have been the opinion within the administration on Thursday that the odds in favor of the strike had increased. While the administration had gone further in its preparations to meet this threatened strike than ever before had been the case, it was admitted generally that Federal officials are so surrounded by limitations as to be in a poor position to handle any such emergency.

In spite of everything that could have been done it is admitted on all sides that the strike would have entailed losses and would have interfered with all activities to such an extent as to bring it within the category of a national disaster. The fact that the strike has been avoided without the surrender of any principle means that the country and its business have been saved a serious blow.

There is a feeling in railroad executive circles that there never will be a better time for a "showdown." Some railroad officials are not entirely satisfied that the settlement is the blessing most people regard it. This is predicated on the assumption that the strike simply has been delayed and that no lasting impression has been made upon the labor unions. There are many, however, who believe that organized labor as a whole has been taught a lesson. Public opinion never before weighed as heavily in a labor dispute.

The action of the administration in taking such prompt and effective steps to counteract the consequences of a strike came as a surprise to many labor leaders. In fact it establishes a new policy of Federal procedure—one that has proven popular and which is likely to be followed in the future. The steps that were taken to accumulate stocks of necessities at strategic points probably will not be abandoned. No one will be surprised if through cooperation with state and municipal authorities a plan is worked out looking to the emergency assembly of necessities at central points, so as to insure the maximum of protection to the public when a situation of this kind arises in the future.

UNCERTAINTY REGARDING EFFECT OF SETTLEMENT

Opinions differ as to the effect which the calling off of the railroad strike will have on the mine workers. Some believe that they will be impressed by the sentiment manifested against a railroad strike and by the attitude of national and state officials. Others are firm in the belief that a coal strike cannot be avoided. It is admitted by all, however, that much will depend on the conclusions that will be formed as to who is the winner of the railroad controversy. If the developments of the next few weeks are such as to make it appear as anything less than a defeat for labor the effect on the coal strike will be correspondingly less.

Advices to the Department of Commerce indicate that during the week ended Oct. 29 as much coal was moved as the railroads could handle. Some are of the opinion that there will be a decided slump in the movement of coal because the strike is not to be called. Others think that the strike had the effect of reminding consumers that they had better lay in their supplies and wait no longer on possible reductions in freight rates and in prices. Such analysis as it has been possible to make of this coal movement indicates that large consumers were not heavy buyers. To start with, the public utilities and certain other large consumers already had laid in considerable reserves of fuel. Even those consumers who had small reserves made little effort to get coal, on the assumption that a strike that would prevent their getting coal also would prevent receipts of raw material and the shipment of output. As

they faced conditions which would necessitate a shutdown for other reasons, they did not worry much about the coal supply.

While the returns are not complete from the survey of coal stocks made by the Department of Commerce, enough figures were collected to indicate that stocks taken as a whole are not far from normal. Domestic stocks at this time of year always are at the low point, but even in their case there are indications that the experience of the war has had the effect of influencing some to buy coal early. Retail stocks seem to be normal, with reserves sufficient for domestic consumers' normal needs for periods varying from three to six weeks. Some crumb of comfort was occasioned by the fact that considerable stocks of anthracite were available at points near Tidewater and by the fact that considerable stocks of byproduct coke had been built up in cities where it could be utilized to the best effect.

A thorough survey of coal stocks is to be made by the U. S. Geological Survey as of Nov. 1. It also is the intention to make another survey sixty days later. This survey was decided upon before the strike situation developed. In view of the possibilities of a coal strike in the spring, it is regarded as being unusually important to obtain exact data as to stocks as of Nov. 1 and Jan. 1.

Jersey Central Receives Bids for Stock of Lehigh & Wilkes-Barre Coal Co.

IN conformity with the ruling of the court in the Reading dissolution case bids were received Oct. 27 for the purchase of Jersey Central's holdings of \$8,849,400 par value of Lehigh & Wilkes-Barre Coal Co. stock at the offices of the railroad, it was learned from the committee appointed to handle the matter. This committee, composed of Robert W. de Forest, Edward T. Stoesbury and Daniel Willard, was appointed Sept. 29 by the Jersey Central directors. The bids received, the committee reported, would be taken up at a special meeting of the Jersey Central directors, Tuesday afternoon, Nov. 1.

Under the court order in connection with the Reading dissolution case, the Jersey Central was ordered to dispose of its Wilkes-Barre stock before Dec. 11. In case the stock is not sold by this date, it is to be transferred to the Central Union Trust Co. as custodian, subject to further court orders.

Trial of Baltimore Coal Exchange Members Set for Early November

TRIAL of the members of the Baltimore Coal Exchange charged with maintaining a monopoly has been set by State's Attorney Leach for the early part of November, probably Nov. 10, according to a communication sent by the prosecuting officer to Edwin T. Dickerson and Harry W. Nice, counsel for the exchange. It is expected that within a short time the lawyers for the defense will file a demurrer to the indictment in anticipation of any possible fight before the Court of Appeals.

The trial is likely to be prolonged, and the attitude of the State's Attorney is that he will be compelled to ask for a third criminal court for the proceedings, as the criminal dockets are already crowded. For this reason the prosecutor hopes to have the Supreme Bench allow a third court.

A long list of dealers is included in the indictment and they are said to be represented by an array of counsel outside the lawyers for the Coal Exchange.

Coal Mining Institute of America Will Propound Questions and Hear Papers

AFTER a business session and an article by Dr. George H. Ashley on "Mineral Resources of Pennsylvania" the Coal Mining Institute of America, which will assemble Dec. 7 in the Chamber of Commerce Auditorium, Pittsburgh, Pa., will settle itself down to answer questions. The question box is one of the distinguishing features of this organization. Papers may please the American Institute of Mining and Metallurgical Engineers and committee reports the Standardization Committee of the American Mining Congress and the West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers, but the Coal Mining Institute of America persists in its question box. Question No. 1, propounded from Denver, Col., is "What has been the effect on the upper of two beds of coal due to the lower being mined first?" The second question is "How can bad roof conditions due to the use of undercutting machines and shooting near to the roof be eliminated? Roof conditions under pick-mining systems are excellent." This strange question comes from Republic, Pa.

Jesse K. Johnston, president of the Ridgeview Coal Co., Bolivar, Pa., will then present a paper, entitled "Some Data on the Thick Freeport Coal." In the afternoon session, with R. Z. Virgin presiding, a question from Columbus, Ohio, will be introduced: "What are the important elements to consider when selecting a combination battery and trolley locomotive for gathering cars?" St. Louis, Mo., furnishes the following question, or rather item for discussion: "Give some data on the proper installation of electrical equipment underground, direct current, alternating-current transformer stations, motor-generator and rotary-converter sets." Johnstown, Pa., with a strong roof, heavy bottom and low coal naturally questions, "Why not some way to work low coal on the longwall face system?" Why not, indeed. Johnstown should show the way.

NOTABLES TO MAKE ADDRESSES AT ANNUAL DINNER

"Safety Gates and Safety Appliances for Cages and Hoisting Shafts" is the name of a paper to be delivered by W. G. Duncan, director of mining extension, State College, Pa. This paper was in process of preparation a year ago, but Mr. Duncan was incapacitated by sickness at that time and could not deliver it.

In the evening of Dec. 7 the annual dinner will be held at McCreery's store, with President A. R. Pollock as toastmaster and E. E. Bach, director of the Americanization Bureau of Harrisburg, Pa.; Carl Scholz, of the Raleigh-Wyoming Coal Co., Charleston, Pa.; A. R. Hamilton, coal operator, of Pittsburgh, and H. Foster Bain, director of the U. S. Bureau of Mines, Washington, D. C., as speakers.

At the morning session of Dec. 8 Captain G. H. Burrell will read an article on "Carbon Monoxide Masks for Coal Mines," and the question box session being resumed, with Alexander McCanch in the chair, the following questions will be asked: From Pittsburgh, Pa., "What is the relation of moisture content of the air to dust and gas explosions?" from Clarksville, Pa., "When a section of a mine is entirely worked out and abandoned, wouldn't it be proper to seal off the section or should it be ventilated?" from New Zealand, "In a mine in which firedamp has never been detected, and which is worked entirely by open lights, but in which only permissible explosives are used on account of the dryness of the dust, should the ventilating fan be run continuously or should it be stopped on Sundays, holidays or idle days?"

The morning session will also consider two papers, one by N. S. Greensfield, explosives engineer for the Hercules Powder Co., on "The Scientific Selection of Explosives for Coal Mining," and one by Robert Z. Virgin, instructor, Carnegie Institute of Technology, Pittsburgh, Pa., entitled "Recovery of All Values from Refuse Coal."

In the afternoon Daniel R. Blower, of the Vesta Coal Co., will preside and two questions will be discussed. St. Louis, Mo., presents "What are the main factors which constitute a successful mine official other than knowledge of the min-

ing law?" and Johnstown, Pa., "Why should not all coal mines, regardless of whether they employ one man or ten men, come under the Pennsylvania State Mining Law?"

Following will be two papers, "Explosion-Proof Mine Locomotives," by L. C. Illsley, electrical engineer, U. S. Bureau of Mines, and "Comparative Haulage Costs—Animal and Mechanical," by A. F. Strouse, consulting engineer, of Pittsburgh, Pa.

On Friday there are to be two inspection trips—one to the New Liberty Tunnels and another to Carnegie Tech., where the coal-mine and coal-mining models will be examined under the direction of A. C. Fieldner, of the U. S. Bureau of Mines.

New Wage Scale Proposed in Nova Scotia

FIVE to fifteen per cent reductions in wages have been suggested as likely to result from the deliberations at Halifax, N. S., Nov. 10, between the delegates of the mine workers and operators of district No. 26 of the United Mine Workers of America, that district covering the coal mines of Nova Scotia. The present agreement expires on Nov. 1.

Roy M. Wolvin, president of the British Empire Steel Corporation, of which the Dominion Coal Co. is a subsidiary, stated in an interview that there was a chance of the Nova Scotia coal mines being closed down during the coming winter, owing to trade conditions and the determination of the miners to oppose any reduction in wages. The employment of the steel workers also was dependent upon the situation in the coal trade, and the keeping open of the mills would be rendered possible only by the reduction of wages in the mines.

Mr. Wolvin pointed out that the coal miners were receiving the same wages as were paid during the war, plus two heavy increases given since the armistice. Although the price of coal along with other commodities had declined and the wages of coal miners in Britain and of non-union mine workers in the United States had been considerably reduced, the Nova Scotia miners were getting from 130 to 200 per cent higher wages than in 1914, whereas the cost of living was only from 50 to 60 per cent higher than in that year, and present wages were for an 8-hour day while in 1914 they were for a 9-hour day. The Dominion Coal Co. had no fund from which it could pay wages unless the cost of production was at least equalled by the selling price of the product. The cost of coal mined under present rates of miners' wages would not allow steel to be manufactured at today's market prices.

Penna Says Next Mine Wage Will Be Lower

PHIL H. PENNA, secretary of the Indiana Bituminous Coal Operators' Association, made the first authoritative statement recently to the effect that mine operators will ask for a reduction in pay for mining coal with the negotiating of a new scale in 1922. In making his statement Mr. Penna said the present scale is the highest ever paid, but that it would be maintained by the operators until expiration of the contract because they felt in honor bound to respect it.

"In making a new scale," said Mr. Penna, "we shall expect to adjust it to correspond to other industries and with the reduced cost of living. I think that the mine workers and the coal operators should be permitted to adjust their own trade affairs without interference from any source, provided, of course, that they are able to do so.

"I submit that it is not unreasonable at this time to anticipate such interruption of production as is anticipated, and especially in view of the statements of the union leaders that there will be an attempt to resist any reduction in wages. If those gentlemen are voicing the sentiment of the United Mine Workers, it is more than ever apparent that we shall fail to settle our differences and shall require the assistance of outsiders to settle for us. I do not advocate the appointment of government arbitrators, but would prefer that we appoint our own arbitrators, if it becomes necessary, and that the public appoint them for us if we are unable to agree."

Plots and Counter Plots Charged in Mingo Hearing; Senate Committee Prepares Recommendations

FINAL investigation of the West Virginia coal strike was held by the Senate Committee on Education and Labor last week and the committee is preparing its report, to be submitted to the Senate before the present session closes, in which it will recommend measures to end this and prevent other industrial disputes. Ugly charges were developed against the labor unions, among them that 700 rifles were in the hands of striking miners and that a former union organizer was unlawfully jailed for 113 days on an unsigned commitment for alleged forgery of funds which he used in buying arms for the miners. A. E. Hester was the man who was unlawfully jailed by the labor union, and his release was brought about through intervention with the judge of the jurisdiction by attorneys for the coal operators. Attorney Houston for the mine union, who as notary certified to the commitment, admitted that in the press of business he forgot Hester was in jail.

Hester was perhaps the star witness for the coal operators and his statement of his unlawful incarceration, unchallenged by the union, was astonishing to the committee and dropped into the union camp like a bombshell. Hester said he was paid \$300 a month as union organizer and by direction of union leaders purchased, or made available through scrip issue, high-power rifles for the miners. He broke with the union leaders because he could not countenance the ruthless use of rifles by the miners in shooting scrapes, and the union leaders trumped up the charge of embezzling the funds he had disbursed for the rifles.

PUBLIC SYMPATHY LEANS TOWARD MINE UNIONS

Mr. Wiley, a union coal-mine operator, explained to the committee that the mine unions were able to obtain more public sympathy than the coal operators. He declared that while the union leaders were inclined to conservatism, the radicals in their ranks carried them off their feet in the attempt to establish union control of mines.

H. C. Ogden, an editor, of Wheeling, said the mine guard system was an abuse of power. He complained that Governor Morgan had done nothing to remedy the situation, charging that he remained inactive on a party platform pledging abolition of the mine-guard system. He feared a renewal of warfare next spring, when the wage scales would again come up, and recommended a labor court or board of arbitration to settle the troubles.

William McKell, a Fayette County mine operator, said that seven union leaders were in jail for shooting up his mine. He described lawlessness on the part of union workers.

Counsel for the miners asked the attorneys for the operators to negotiate a settlement of the differences on the basis of the Murray plan submitted last week but the operators' attorneys declined to treat with the union.

Sheriff Don Chafin of Logan County defended the practice of the unions in paying the salaries of deputy sheriffs, as it was the only way to maintain order, the citizens being agreeable to the arrangement rather than to have added taxes to maintain order.

Ernest M. Merrill, of Charleston, mining engineer and operator, said the cost of equipment and expense of a union mine was 20 to 25 per cent more than a non-union mine, it being the difference "between running your own property and having somebody run it for you." He also said that efficiency of operation and maximum production could not be obtained under union contracts.

Thomas L. Felts, of Virginia, head of the detective agency of that name, said union charges against his organization were false and intended to injure his reputation, he being a candidate for Congress. His organization had tracked and aided in convicting some union miners in West Virginia, which caused the union's charges against him. Attorneys for the operators sought to develop that the union had circulated fake telegrams from President Harding promising aid in abolishing mine guards and

private detectives if the unions would stop their march on non-union camps.

Samuel Untermyer said the Steel Corporation was responsible for conditions in the coal fields through its control of coal fields and its opposition to organized labor. This was again denied by attorneys for the operators, and Mr. Untermyer qualified his statement by saying that the Steel control probably was indirect. He thought industrial peace could be brought about by requiring corporations in interstate commerce to be licensed under the Federal Trade Commission with the stipulation that they should practice collective bargaining with their employees. While he thought the open shop would be ideal, he admitted it could not be realized with the closed shop advocated by labor.

William H. Coolidge, attorney for the operators and also chairman of the Board of Directors and counsel for the Island Creek Coal Co., the largest producer in Logan County, condemned the union for insistence on its alleged rights without giving recognition to the rights of the operators. He declared it to be the purpose of the unions to obtain possession of the mines, and asserted that the non-union operators would not deal with the organization. He charged that the union staged the insurrection last summer to force operators to submit to union demands, which resulted in calling out of Federal troops. He declared that unionism was "industrial autocracy" and an attempt to get control of this necessity of life and to establish a soviet government.

Mr. Coolidge made a striking contrast of union demands and its failure to recognize the rights of operators by saying that while the union claimed free speech and assembly it denied such rights to the non-union worker. The union asserted collective bargaining but denied the right of individual contract; it claimed the right to organize workers but refused to concede the right of men not to organize into a union.

STRIKES, MURDER AND ARSON FOLLOW ORGANIZERS

"It cries out against mine guards, knowing that the laws of the state deny Mingo and Logan counties the right by taxation to protect life and property," continued Mr. Coolidge. "To remedy this lack of protection the mine owners, who pay 85 per cent of the taxes, contribute enough to county officers to employ policemen to protect life and property. They complain that union organizers are denied entrance into property and mines. So are those whose pictures are in the rogues' gallery denied entrance to the banking districts and are arrested on sight."

Mr. Coolidge charged that strikes, murder and arson followed union organizers and agitators. He said there had been no strikes or differences between operators and non-union men, the men receiving higher wages, living in better homes and having steadier employment than in union mines. He said no new laws or government bureaus were required to stop the outbreaks. He suggested that the committee notify the mine workers that under the Constitution the owners of mines in West Virginia had as much right to run their mines on a non-union as on a union basis; that their employees have as much right to individual contracts as to collective bargaining; that in the absence of protection by the state the operators had a right to protect property the same as hotels, bankers and others protect their property by private guards and that they had a right to keep out undesirable persons just as office buildings keep out peddlers and book agents.

He asked the committee to recommend to Congress that discrimination between classes should not be recognized and that criminal laws be not applied to one class and applied to another, and to permit the Department of Justice to use anti-trust enforcement funds in stopping and punishing conspiracies by labor leaders, and also that the committee report against nationalization of mines.

Judge Anderson Enjoins Unionization of Coal Miners in Williamson Field and Forbids Check-Off

DISTRIBUTION of money in West Virginia by the United Mine Workers of America for any purpose except to relieve actual suffering among bituminous coal miners now on strike and the continuance of the "check-off" system, whereby union dues are collected from miners by the coal operators, are prohibited in a temporary injunction issued Oct. 31 by Judge A. B. Anderson, in Federal District Court of Indiana. The order was issued on the petition of the Borderland Coal Corporation, of West Virginia, in a suit charging that the miners' union and the operators of the Central Competitive Field are conspiring to throttle through unlawful methods the competition of the West Virginia non-union coal mines.

Counsel for the miners pleaded with the court not to make the temporary order so broad, holding that it went to the merits of the case and left practically nothing for the defense to do but accept the order as a final decree. Judge Anderson spoke of the fact that last Saturday he gave John L. Lewis, president of the United Mine Workers of America, an opportunity to say he would preserve the status quo of the West Virginia situation until the case could come up for final hearing and that Mr. Lewis had said he declined to surrender. "I asked the simple privilege of time and was denied time," he explained. "Mr. Lewis forced me to decide. I am compelled to go further than I wanted to go."

MINERS' COUNSEL PLEADS FOR LESS STRINGENT RULING

W. A. Glasgow, Jr., of Philadelphia, chief counsel for the miners, argued at length in an effort to prevail on the court to make the order less stringent. He said that he would not undertake to change the views of the court as expressed in the court's statement, but he hoped on final hearing to submit proof that the "check-off" system within itself is lawful and used for a lawful purpose. Speaking for Mr. Lewis, in reference to the latter's refusal voluntarily to preserve the status quo of the efforts to unionize the West Virginia field, Mr. Glasgow said that, considering Mr. Lewis's official capacity he did not see how he could have answered differently. He suggested that Mr. Lewis's reply might have been different if Judge Anderson had requested that the union prevent unlawful methods in the strike activities.

The court did not deny the right of workers to organize, but held that the miners' efforts in West Virginia were in furtherance of a conspiracy with operators in organized union fields to shut off the competition of non-union mined coal. In discussing with counsel the text of the order Judge Anderson said he would not enjoin "peaceful efforts" of the union to organize West Virginia. Mr. Glasgow urged that inasmuch as the court had decided that the money obtained through the "check-off" system was used for an unlawful purpose, the order should enjoin the use of the money for such purpose and not enjoin the use of the system in collecting the money.

"I am forced to do as I am doing," Judge Anderson replied. "I am holding that the effort to unionize the mines in West Virginia is unlawful and I must restrain everything directed to that effort. I want it directed to that effort. I want it distinctly understood that I am not holding the miners' organization is unlawful, but I am holding that the effort being made to unionize the non-union mines in West Virginia is unlawful in itself because it is an effort to suppress competition."

Judge Anderson said that in his opinion it was no defense to say that money obtained by means of the "check-off" was used only for the relief of suffering in West Virginia. He could not differentiate, he said, between the use of the money to buy supplies in support of the insurrection and the use of it in purchasing arms and ammunition. He insisted that in view of the refusal of Mr. Lewis to preserve the status quo in the strike territory it was necessary for the court

to enjoin the use of any method being used in furtherance of the unlawful strike.

Operators generally are "restrained from collecting over and through their payrolls or in any other manner, any and all moneys as dues and assessments levied or charged by the United Mine Workers of America, its officials or members, upon or against its members, employees of said individuals and of defendant corporations, or who may hereafter be employed by them under the check-off provisions of the contracts in evidence herein and heretofore executed by or in behalf of said named defendants and the officials or members of the United Mine Workers of America, or under any and all contracts that may hereafter be executed between the said defendants and the officials or members of the said United Mine Workers of America, and from paying the same to the officials, members or representatives of the United Mine Workers of America."

STATEMENT GIVES REASONS FOR STOPPING CHECK-OFF

Before considering the form of the order, which was not signed until afternoon, Judge Anderson made the following statement setting forth his reasons for ordering a discontinuance of the payment of money into West Virginia by the union and the collection of money through the "check-off" system:

"The bill avers and the proof shows a combination and working arrangement—a conspiracy between the United Mine Workers of America and the coal operators in the so-called Central Competitive Field, to destroy what some of the conspirators call the 'vicious competition' of the West Virginia mines.

"Almost all of the coal produced in West Virginia is shipped out of the state in interstate commerce and the business of the plaintiff is shown to be interstate. It lifts its coal out of its mines in one state and places it upon cars for shipment in another. The evidence shows that the competition complained of and sought to be destroyed is competition in the sale of bituminous coal throughout the several states. A conspiracy to destroy such competition is in direct contravention of the Sherman Anti-Trust act. Section 1 of that act provides:

"Every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade or commerce among the several states, or with foreign nations, is hereby declared to be illegal."

"The bituminous coal fields of the United States are already unionized except a portion of West Virginia and a small section of the Southwestern part of the country, and an effort to unionize the West Virginia mines is part of an effort to monopolize all the coal industry in the United States until, as one of the conspirators says, the United Mine Workers' organization 'shall cover every coal-producing state in the Republic.'

"The method agreed upon and adopted by the conspirators to thus destroy competition was to organize or unionize the West Virginia field. These West Virginia operators desire to run their mines on a non-union basis. The effort on the part of the defendants to unionize these mines and thus compel the operators to unwillingly run upon the union basis would result either in the suppression of this non-union mining altogether or would put such restrictions on it as to accomplish the objects of the conspiracy—namely, raise the price of the West Virginia product so that it could not compete with the so-called Central Competitive Field.

"The attempt to do this was continued for some time by the usual incidents of violence and exhibitions of force, and matters progressed until a state of war existed in West Virginia which the state government was unable to put down, and upon the call of the state authorities, the President of the United States declared martial law, sent Federal troops into West Virginia and restored order.

"The evidence shows that members of the mine workers' union purchased firearms and ammunition and otherwise financed the violent activities in behalf of the unionizing forces in West Virginia, and this state of war continued until the President sent troops into the state, and it is only held in abeyance because of that fact.

"The evidence shows that the revenues of the mine workers' union are produced from dues and assessments laid upon the members; that these dues and assessments are by an arrangement between the miners' organization and the operators taken from the wages of the workers in the mines by the operators and paid by them to the organization of the mine workers. This is the 'check-off' system. The membership is large and the dues and assessments yield an enormous sum.

"Statements made by officers of the United Mine Workers show that the miners' organization has sent into West Virginia to carry on this struggle more than \$2,500,000, and the secretary-treasurer of that organization in his report to the convention recently held in this city stated that during the year ended Aug. 1, 1921, the organization had sent into West Virginia more than \$1,000,000. This money was derived from the 'check-off' system and was sent to West Virginia to assist in the effort to organize the West Virginia field.

"The evidence without contradiction shows that ammunition and arms were purchased by members of the mine workers' union and used for the purpose of carrying on this struggle. It is claimed on the part of the defendants that the money used to purchase these arms and this ammunition and to mobilize and direct these armies came from the locals, and that no part of the money sent from here was used for that purpose, but that such money was and is used only in such peaceable ways as caring for and feeding and furnishing supplies to those union miners who have been evicted from their homes or deprived of a living or otherwise put to a disadvantage in carrying on this struggle.

HOLDS "CHECK-OFF" MONEY ILLEGALLY USED

"If this be true it is quite apparent that there is no difference in the activities of those who furnish the food and supplies for the army and those who furnish it its arms and ammunition. The money sent by the miners' organization derived from the 'check-off' system as above stated is sent there to aid, abet and assist those on the ground, actively engaged in the unlawful attempt to unionize the non-union mines in West Virginia and destroy competition, as above stated.

"The evidence clearly shows that the mine operators know (at least they know now) that this money, thus contributed by them through the 'check-off' system, is used in this unlawful manner. It, therefore, follows that the use of such money should be enjoined, and the carrying on of the 'check-off' system as a means for raising it should likewise be enjoined.

"At the conclusion of the evidence counsel for the miners requested time to introduce some evidence explanatory of the large sums of money shown to have been sent by the organization into the West Virginia fields, and also asked for an extension of time for thirty days in which to file their answer to the bill. The court at once conceded that these requests were reasonable and indicated its willingness to grant such extensions, and stated that owing to the great importance of the questions involved, and considering that if the relief prayed for in the bill were granted, it would have such far-reaching consequences, suggested that it would like all the light upon the subject that could be furnished by evidence and time for investigation and argument as to the principles of law involved, and stated that the time requested by the mine workers' counsel would be granted upon condition that the status quo be preserved in the meantime.

"Mr. John L. Lewis, the president of the United Mine Workers of America, being in the courtroom at the time, was asked by the court if he would agree to preserve the status quo, that is, cease efforts to unionize these mines in West Virginia until the court would have time to more thoroughly investigate the matter, the court stating that it would be entirely satisfied with Mr. Lewis's assurance to

that effect. Mr. Lewis promptly declined to agree to desist, thus creating the emergency for the issuing of a temporary injunction and compelling the court to act without further opportunity to investigate the important questions involved.

"This court cannot police West Virginia, nor does it hold that the United Mine Workers' Union is itself an unlawful organization, nor will it in any way attempt to curtail its lawful activities, but it can enjoin the unlawful activities of the parties here in Indiana who are here now under the jurisdiction of this court, and a temporary injunction to that effect will be issued."

Strikes Threatened in Colorado Mines

A 30-PER CENT wage cut has been suggested by the Keystone Mining Co. and the Pike's Peak Consolidated Fuel Co., and the Colorado Industrial Commission has been asked to pass on its justification. The operators assert that the cost of living has been lowered enough to meet the reduction. The new wage scale would restore that in effect Nov. 1, 1919.

The commission even now is considering the 30-per cent wage reduction proposed for the mine workers of the Colorado Fuel & Iron Co. in southern Colorado. This suggested wage reduction nearly precipitated a strike on Sept. 1, and the strike may occur if the commission concurs with the company that the reduction is logical.

The unrest of the Colorado mine workers is exhibited by the controversy at the mines of the Oakdale Coal Co., at Oakview, where the miners recently went on strike because of a quarrel between the foreman and a discharged miner.

The Industrial Commission has issued a peremptory order calling upon the miners to return to work until after a hearing can be held. Union officials have been ordered to rescind and cancel their strike order and to refrain from encouraging miners to remain away from work.

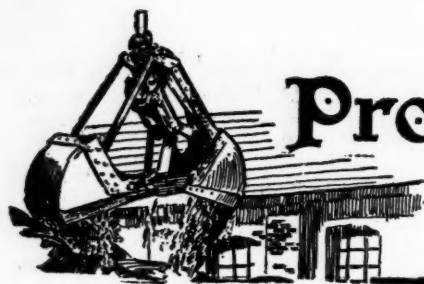
I. C. C. Resumes Hearing in Freight-Rate Tangle in Inner and Outer Crescent

WHETHER the Ohio State Utilities Board has the power to forbid railroads to increase rates and the general adjustment of freight rates on coal in the southern Ohio, eastern Kentucky and West Virginia districts are questions on which testimony is to be taken for the Interstate Commerce Commission at the hearing which opened in the Marlborough-Blenheim Hotel at Atlantic City, Monday, Oct. 31. The hearing, which is expected to last all week, is being presided over by Chief Examiner Quirk for the Interstate Commerce Commission and prominent coal and railroad men are in attendance. The present hearing is a continuation of a hearing in Columbus, Ohio, that was adjourned in September.

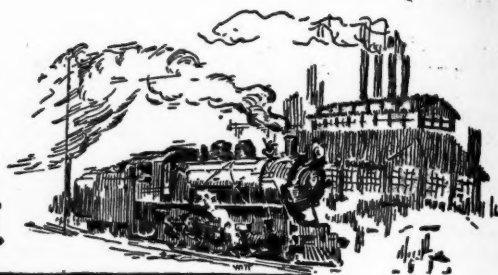
The Southern Ohio Coal Operators' Association is one of the chief complainants in the case before the commission. The association named in its complaint specifically the Chesapeake & Ohio R.R., but other railroads that carry coal in Ohio, Pennsylvania, Kentucky, Tennessee and West Virginia are involved. The coal operators desire lower charges.

When there was a general increase in freight and passenger rates some months ago the Ohio State Utilities Commission forbade the increases to be put in force in that state. The issue is now before the commission and testimony will be offered by both sides this week.

ANTHRACITE MINE WORKERS TO MEET IN SHAMOKIN.—The tri-district convention of the United Mine Workers of America to frame the wage demands to be submitted to the international convention in Indianapolis, Feb. 14, 1922, will be held in Shamokin, beginning Jan. 17, 1922. This was decided at a meeting of the tri-district executive boards in Hazleton last week. The boards also took the rather unusual step of getting into politics by indorsing the candidacy of Judge Eugene Bonniwell, of Philadelphia, for Justice of the Pennsylvania Supreme Court.



Production and the Market



Weekly Review

SETTLEMENT of the railroad strike threat has removed the main sales talk of industrial coal shippers and the steam markets have again relapsed into a lethargic condition. While buyers had discounted the probability of a serious transportation tie-up, there was enough cautious buying for safeguarding reserves to cause a temporary bolster to the market. This demand has subsided and the coal factors will now mark time until the slowly increasing industrial consumption uses up the fuel reserves provided for the emergency.

CHECK-OFF INJUNCTION MAY CAUSE TROUBLE

Judge Anderson's order on the union coal operators to cease collection of the check-off is certain to raise a large measure of opposition among the miners (the anthracite region is not affected) and in some quarters strikes are freely predicted. It is too early to forecast the effect on soft coal production of this legal move to prevent the mine workers from forcibly organizing West Virginia.

Domestic bituminous coal is moving well, as would be expected during this time of the year. Prices on these grades, of course, are not affected by the recent strike flurry. It is necessary, however, to push the resultant coals, and last week's steam prices are a thing of the past. This is especially true in the Midwest, where domestic production is heavy. That section of the country is being actively canvassed by Eastern coal shippers, who are cutting prices to the detriment of the Indiana and Illinois fuels. New England continues to be the mainstay of the Hampton Roads factors and spot prices are as low as ever. There is a distinct tendency, however, to hold and even increase prices on business over the period to the new coal year and concessions on this business are rare.

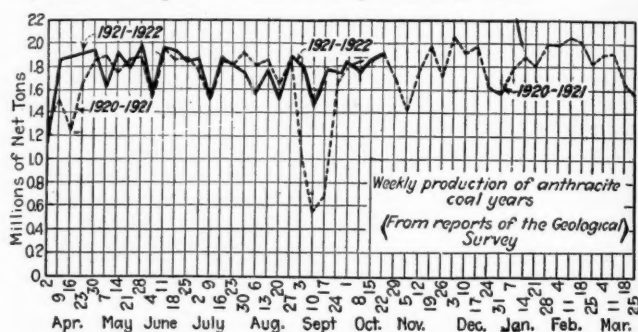
Buyers are making no move which would indicate any anxiety over prospects for the future. In fact,

stocks everywhere are satisfactory from the consumer's viewpoint. Recent active buying of railroad fuel has placed the roads in an extremely good position. Almost uniformly, public utilities have on hand, as a minimum, a thirty days' supply. The small steam user was the best customer during the strike talk and his reserves are ample for the immediate future. With so much agitation for lowered freight rates going the rounds the seller of coal is placed strictly on the defensive in the matter of obtaining current business.

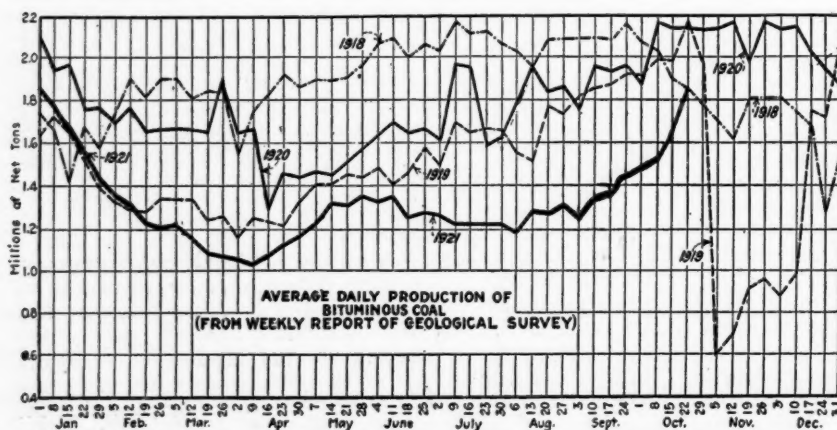
With such a condition, price concessions are inevitable and while quotations have not yet receded to the levels ruling before the strike talk they have closely paralleled the drop in demand. *Coal Age* Index of spot bituminous prices stands at 91 on Oct. 31, as compared with 92 on Oct. 24.

Baltimore, New York and Philadelphia markets have reacted with the strike settlement and the trade has adopted a policy of watchful waiting, moving coal whenever possible, but refusing to quote "distress" prices.

The old bugaboo of car shortage again is apparent, especially in the Middle West. During the week ended Oct. 15 the number of surplus coal cars decreased over 14,000 in comparison with the preceding week.



Anthracite markets and production are steady. Consumers are buying domestic sizes in smaller quantities



Estimates of Production

(Net Tons)

BITUMINOUS COAL

Week Ended	1921	1920
Oct. 8 (b).....	9,134,000	12,103,000
Oct. 15 (b).....	9,691,000	12,110,000
Oct. 22 (a).....	10,993,000	12,232,000
Daily average.....	1,832,000	2,039,000
Calendar year.....	327,177,000	436,381,000
Daily average, calendar year.....	1,312,000	1,746,000

ANTHRACITE

Oct. 8.....	1,793,000	1,898,000
Oct. 15.....	1,843,000	1,906,000
Oct. 22 (a).....	1,912,000	1,969,000
Calendar year.....	72,653,000	71,666,000

COKE

Oct. 15.....	94,000	400,000
Oct. 22 (a).....	102,000	391,000
Calendar year.....	4,395,000	17,265,000

(a) Subject to revision. (b) Revised from last report.

than normal, but the demand from retailers continues to provide operators with orders well in advance of the immediate capacity.

Beehive coke production has been in advance of the demand and will outdistance it with the resumption of a total of 1,250 ovens in the Connellsville region by the Frick company.

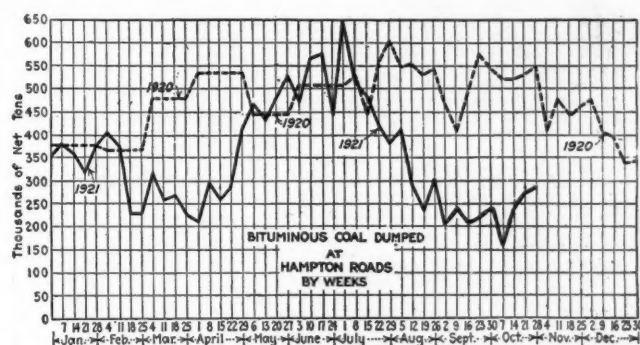
BITUMINOUS

The effect of the rail strike threat is clearly indicated by the jump in production during the week ended Oct. 22. According to the Geological Survey, 10,993,000 net tons were mined, a new record since last January and 1,302,000 tons in excess of the preceding week. The rate of production under the strike stimulus was not far below normal for this season of the year—in the corresponding week of 1917 it was 10,844,000 tons, in 1918 about 11,170,000 and in 1920 over 12,230,000. A further sharp increase is indicated by car loading for Oct. 24-25 and the momentum of ten days business may have carried last week to a new high for this year.

New England markets remain quiet. Shipments all-rail in the week ended Oct. 22 were 2,857 cars, compared with 2,923 in the week preceding. In the corresponding week of 1920 there were 5,512 cars forwarded over the Hudson. September receipts declined slightly, as compared with pre-

ceding years, being 12,455,000 net tons; in 1920 the September figures were 16,598,000; in 1919, 13,849,000.

Little comment is necessary on the export situation. Only in the West Indies and Southern markets is there



an outlet for American coal in the face of strong British competition. With the exception of a few clearings to these ports, the Hampton Roads agencies are continuing to center their attention on the New England market and the

An error occurred in the table of current bituminous quotations for the week of Oct. 24. (*Coal Age*, p. 697, Oct. 27, 1921.) Prices quoted for Franklin, Illinois, covered the Northern Illinois field and should have read: Lump, \$3.50@4.30; mine run, \$2.40@3.50; screenings, \$1.75@2.50.

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	Sept. 27, 1921	Oct. 17, 1921	Oct. 24, 1921	Oct. 31, 1921†
Pocahontas lump.....	Columbus.....	\$4.90	\$4.50	\$4.70	\$4.65@4.90
Pocahontas mine run.....	Columbus.....	2.65	2.65	2.65	2.35@2.75
Pocahontas screenings.....	Columbus.....	2.10	1.95	1.60	1.50@2.00
Pocahontas lump.....	Chicago.....	4.75	4.75	4.75	4.50@5.00
Pocahontas mine run.....	Chicago.....	2.85	2.90	3.15	2.75@3.50
*Smokeless mine run.....	Boston.....	4.90	4.85	4.90	4.75@4.90
Clearfield mine run.....	Boston.....	1.90	1.95	1.95	1.75@2.15
Cambria mine run.....	Boston.....	2.35	2.45	2.45	2.10@2.75
Somerset mine run.....	Boston.....	1.75	1.90	1.90	1.60@2.15
Pool 1 (Navy Standard).....	New York.....	3.25	3.20	3.40	3.00@3.50
Pool 1 (Navy Standard).....	Philadelphia.....	3.10	3.15	3.15	3.00@3.30
Pool 1 (Navy Standard).....	Baltimore.....	2.80	2.90	2.90	2.60@2.75
Pool 9 (Super. Low Vol.).....	New York.....	2.55	2.50	2.60	2.50@2.75
Pool 9 (Super. Low Vol.).....	Philadelphia.....	2.40	2.45	2.45	2.25@2.60
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.60	2.45	2.45	2.35@2.60
Pool 10 (H. Gr. Low Vol.).....	New York.....	2.30	2.20	2.30	2.15@2.40
Pool 10 (H. Gr. Low Vol.).....	Philadelphia.....	2.05	2.15	2.15	2.00@2.25
Pool 10 (H. Gr. Low Vol.).....	Baltimore.....	2.30	2.20	2.20	2.10@2.25
Pool 11 (Low Vol.).....	New York.....	1.90	1.85	1.85	1.75@2.00
Pool 11 (Low Vol.).....	Philadelphia.....	1.80	1.85	1.85	1.75@2.00
Pool 11 (Low Vol.).....	Baltimore.....	2.10	2.00	2.00	1.95@2.05
High-Volatile, Eastern	Market Quoted	Sept. 27, 1921	Oct. 17, 1921	Oct. 24, 1921	Oct. 31, 1921†
Pool 54-64 (Gas and St.).....	New York.....	1.90	1.75	1.80	1.75@1.95
Pool 54-64 (Gas and St.).....	Philadelphia.....	1.75	1.75	1.75	1.65@1.85
Pool 54-64 (Gas and St.).....	Baltimore.....	1.70	1.75	1.70	1.70@1.80
Pittsburgh sc'd gas.....	Pittsburgh.....	2.65	2.65	2.65	2.60@2.70
Pittsburgh mine run (St.).....	Pittsburgh.....	2.20	2.20	2.15	2.10@2.20
Pittsburgh slack (Gas).....	Pittsburgh.....	2.15	1.95	1.65	1.60@1.70
Kanawha lump.....	Columbus.....	3.35	3.20	3.50	3.00@3.65
Kanawha mine run.....	Columbus.....	2.00	2.05	2.15	2.00@2.25
Kanawha screenings.....	Columbus.....	1.25	1.10	1.15	1.15@1.30
Hocking lump.....	Columbus.....	3.25	3.20	3.30	3.00@3.50
Hocking mine run.....	Columbus.....	2.15	2.00	2.10	2.00@2.15
Hocking screenings.....	Columbus.....	1.15	1.00	1.10	1.00@1.20
Pitts. No. 8 lump.....	Cleveland.....	3.25	.....	3.25	3.00@3.50
Midwest	Market Quoted	Sept. 27, 1921	Oct. 17, 1921	Oct. 24, 1921	Oct. 31, 1921†
Pitts. No. 8 mine run.....	Cleveland.....	\$2.10	\$2.15	\$2.20	\$2.10@2.15
Pitts. No. 8 screenings.....	Cleveland.....	1.50	1.55	1.70	1.55@1.65
Franklin, Ill. lump.....	Chicago.....	3.80	3.90	3.95	3.85@4.30
Franklin, Ill. mine run.....	Chicago.....	2.95	2.85	3.00	2.00@3.50
Franklin, Ill. screenings.....	Chicago.....	1.75	1.95	1.90	1.00@2.25
Central, Ill. lump.....	Chicago.....	2.70	2.50	2.50	2.00@3.00
Central, Ill. mine run.....	Chicago.....	2.40	2.25	2.25	2.00@2.50
Central, Ill. screenings.....	Chicago.....	1.60	1.20	1.75	1.00@2.25
Ind. 4th Vein lump.....	Chicago.....	2.95	2.95	2.95	2.35@3.50
Ind. 4th Vein mine run.....	Chicago.....	2.40	2.50	2.55	2.00@2.75
Ind. 4th Vein screenings.....	Chicago.....	1.60	1.60	1.85	1.00@2.15
Ind. 5th Vein lump.....	Chicago.....	2.90	2.70	2.70	2.15@3.25
Ind. 5th Vein mine run.....	Chicago.....	2.40	2.50	2.50	2.00@2.75
Ind. 5th Vein screenings.....	Chicago.....	1.55	1.45	1.70	1.00@2.15
Standard lump.....	St. Louis.....	3.15	3.40	3.65	3.25@3.50
Standard mine run.....	St. Louis.....	1.95	1.75	2.00	1.90@2.00
Standard screenings.....	St. Louis.....	.50	.60	.90	.50@1.25
West Ky. lump.....	Louisville.....	2.90	3.15	2.90	2.75@3.00
West Ky. mine run.....	Louisville.....	2.25	2.30	2.40	1.85@3.00
West Ky. screenings.....	Louisville.....	1.15	1.40	1.25	.50@1.75
South and Southwest	Market Quoted	Sept. 27, 1921	Oct. 17, 1921	Oct. 24, 1921	Oct. 31, 1921†
Big Seam lump.....	Birmingham.....	3.75	3.75	3.75	3.25@4.25
Big Seam mine run.....	Birmingham.....	2.15	2.15	2.15	2.00@2.30
Big Seam (washed).....	Birmingham.....	2.40	2.30	2.30	2.15@2.40
S. E. Ky. lump.....	Louisville.....	3.65	3.75	3.90	3.75@4.25
S. E. Ky. mine run.....	Louisville.....	2.20	2.30	2.20	2.00@2.40
S. E. Ky. screenings.....	Louisville.....	1.50	1.25	1.35	1.25@1.35
Kansas lump.....	Kansas City.....	5.75	.....	.....	5.75
Kansas mine run.....	Kansas City.....	4.00	.....	.....	4.00
Kansas screenings.....	Kansas City.....	2.40	.....	.....	2.40

*Gross tons, f.o.b. vessel, Hampton Roads.

†Advances over previous week shown in heavy type, declines in italics.

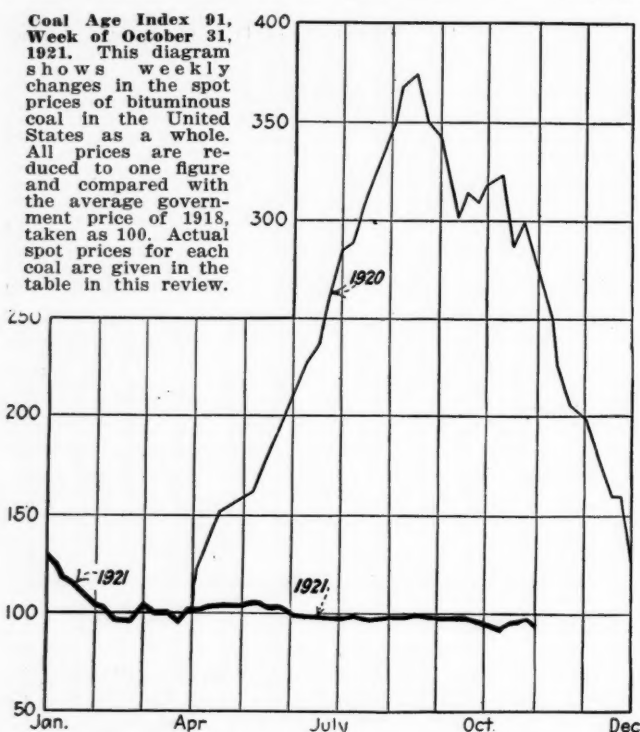
Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

	Market Quoted	Freight Rates	Oct. 17, 1921	Oct. 24, 1921	Oct. 31, 1921†
Broken.....	New York.....	\$2.61	.....	.....	.....
Broken.....	Philadelphia.....	2.66	7.60@8.20	7.60@7.75	7.60@7.75
*Broken.....	Chicago.....	5.63	13.40	12.80	12.80
Egg.....	New York.....	2.61	7.75@8.25	7.60@7.75	7.60@7.75
Egg.....	Philadelphia.....	2.66	8.10@8.35	7.75@7.85	7.75@7.85
*Egg.....	Chicago.....	5.63	13.40	12.80	12.80
Stove.....	New York.....	2.61	8.50@8.75	7.90@8.10	7.90@8.10
Stove.....	Philadelphia.....	2.66	8.25@8.75	8.00@8.35	8.00@8.35
*Stove.....	Chicago.....	5.63	13.40	12.90	12.90
Chestnut.....	New York.....	2.61	8.25@8.50	7.90@8.10	7.90@8.10
Chestnut.....	Philadelphia.....	2.66	8.00@8.50	8.05@8.25	8.05@8.25
*Chestnut.....	Chicago.....	5.63	13.40	12.80	12.80
Pea.....	New York.....	2.47	5.00@5.75	6.05@6.45	5.75@6.00
Pea.....	Philadelphia.....	2.38	4.75@5.50	6.15@6.25	5.00@5.50
*Pea.....	Chicago.....	5.63	12.40	11.15	12.40
Buckwheat No. 1.....	New York.....	2.47	3.00@3.25	3.50	3.25@3.50
Buckwheat No. 1.....	Philadelphia.....	2.38	2.75@3.00	3.50	2.75@3.50
Rice.....	New York.....	2.47	2.00@2.40	2.50	2.15@2.50
Rice.....	Philadelphia.....	2.38	1.75@2.00	2.50	1.75@2.25
Barley.....	New York.....	2.47	1.25@1.50	1.50	1.25@1.50
Barley.....	Philadelphia.....	2.38	1.00@1.25	1.50	1.10@1.25
Birdseye.....	New York.....	2.47	.....	2.50	.....

*Prices and freight rates, net tons; quotations f.o.b. cars, Chicago.

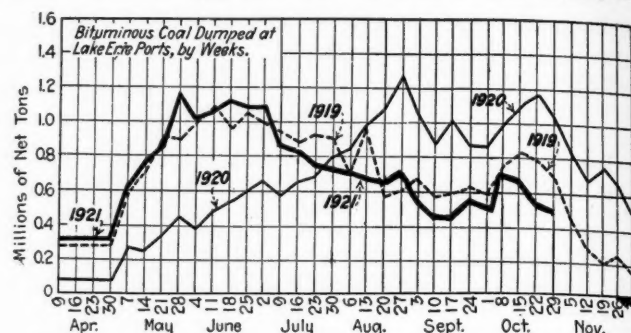
†Advances over previous week shown in heavy type, declines in italics.

bunker trade. During the week ended Oct. 27, 252,694 gross tons were dumped at Hampton Roads, the majority of which was for coastwise business. This is an increase of about 10,000 tons over the preceding week's dumpings.



Lake tonnage is holding well into the close of the navigable season. Dumpings during the week ended Oct.

31 were 508,111 net tons—490,530 cargo and 17,581 vessel fuel as compared with 1,081,275 tons in the corresponding week of 1920. Total movement for the season to date now stands at 21,384,418 net tons; in 1920 it was 20,693,569.



September production of bituminous coal was 35,127,000 net tons, as compared with 34,538,000 tons in August and 30,385,000 tons in July. The total output for first nine months of 1921 was 296,309,000 tons.

ANTHRACITE

Production of hard coal is steady, and the output for the week ended Oct. 22 was not much affected by reports of a possible transportation tie-up. The total output was 1,912,000 net tons, according to the Geological Survey, as compared with 1,843,000 in the week preceding.

COKE

Beehive coke production increased to 102,000 net tons during the week ended Oct. 22, as compared with 94,000 tons in the week preceding. Cumulative production during the calendar year now stands at 4,395,000 net tons, a decrease of 74 per cent from the 1920 figure.

Foreign Market And Export News

United States September Exports of Coal and Coke, by Customs Districts*

Customs Districts	Anthracite	Coal—Bituminous (Gross Tons)	Coke
Maine and N. H.	22	558	53
Vermont	1,417		24
Massachusetts	26		
St. Lawrence	77,107	138,293	973
Rochester	23,317	43,927	
Buffalo	161,006	180,664	5,323
New York	14,072	2,924	56
Philadelphia	2,250	11,119	3,711
Maryland		36,943	
Virginia		108,511	
South Carolina		14,757	
Florida			27
Mobile		268	
New Orleans		1,813	3
Sabine		21	25
San Antonio		253	184
El Paso		7,298	3
San Diego	3	11	
Arizona	2,531	1,228	24
San Francisco	1	22	2
Washington	552	1,823	
Alaska		10	
Dakota	3,626	3,638	675
Duluth & Superior	1,318	4,727	146
Michigan	20	66,923	5,987
Ohio		585,879	418
Total	287,268	1,211,610	17,634

BUNKER COAL SUPPLIED TO STEAMERS (In the Foreign Trade)

Customs Districts	Tons
New York	241,959
Philadelphia	16,763
Maryland	17,483
Virginia	125,609

*From Bureau of Foreign and Domestic Commerce.

Coal Paragraphs from Foreign Lands

GERMANY—Ruhr production is proceeding evenly. The output during the week ended Oct. 15 was 1,787,000 metric tons, according to a cable to *Coal Age*. This is an increase of 20,000 tons over the last preceding week and 9,000 tons in excess of that for the week ended Oct. 1.

ITALY—Cardiff steam firsts are quoted on the Genoa market at 42s. 9d., according to a cable to *Coal Age*. This is a drop, as compared with last week's figures of 43s. 6d.

DENMARK—Imports of coal during the first eight months of 1921 were 1,057,962 tons, against 1,188,210 during the corresponding period last year. This year 162,000 tons came from the United States, 20,000 tons from Germany and the rest from Great Britain.

BELGIUM—The situation shows little change. Industrial coals are weak and stocks are large. In the Borinage Basin the question of ceasing work one day a week is being considered.

An association of Belgian coal dealers and importers has recently been formed at Ghent for the purpose of importing English and American coal. The main object of its establishment is to diminish the risks of importation and to facilitate the necessary financial operations. For the present principally English

coal will be imported, but wherever prices permit this association will be interested in importing American coal. The names and addresses of this association and its members may be secured from the Bureau of Foreign and Domestic Commerce, Washington, D. C., File No. EUR-1011.

CHINA—Cable advices to the Department of Commerce indicate that the industrial situation in China has reached the point where considerable purchases of equipment for iron and coal mines may be expected.

SPAIN—The Ministro de Fomento has decided in principle that 20 per cent of the national coal production shall be used by vessels of the mercantile marine and the railways. The price of Asturian coal tends to weaken but not enough to compete with British coal.

Export Clearances, Week Ended Oct. 27

FROM HAMPTON ROADS	Tons
For Africa:	
Br. SS. Heathfield, for Dakar	6,854
For Atlantic Islands:	
Nor. SS. Joseph J. Cuneo, for Cayo Mambi	754
Nor. SS. Bowden, for Kingston	1,035
For Canal Zone:	
Am. SS. Cristobal, for Cristobal	9,616
For Cuba:	
Am. SS. Lewis K. Thurlow, for Havana	4,591
Br. SS. Berwindale, for Havana	7,934
Nor. SS. Korsfjord, for Santiago	1,532
Am. Schr. Frank A. Morey, for Hamilton	833
Br. Schr. Waegwatie for Santo Domingo	336
Am. Schr. Edward R. Smith for Manzanillo	788

FROM PHILADELPHIA

For Brazil:	
SS. Robin Gray for Rio de Janeiro	
Br. SS. Chertsey for Alexandria	

Settlement of British Miners' Wage Under July Agreement Proving Difficult

Export Business Sole Mainstay of Trade—
Prices Continue to Drop—Welsh Anthracite
in Good Demand—Freight Market Weakens

The output of coal in the United Kingdom during the week ended Oct. 15 was 4,238,000 gross tons as compared with 4,287,000 in the week preceding. The export market is still being actively worked as the best outlet during the period when home demand is so low. The Cumberland field for the first time in its history has shipped coal to the Continent. Italy has just purchased 10,000 tons of best Durham gas at 27s. f.o.b. The Tyne Commissioners report that 1,242,516 tons were shipped from the Tyne in September, compared with 874,264 in September, 1920.

Prices went down somewhat last week, cable reports to *Coal Age* showing Best Admiralty large coal at 28s. to 29s., a drop of a shilling in one week, with some rumors of business this week as low as 25s. Best Newcastle steam coal dropped from 1s. to 2s. 6d. to 24s. @ 25s. and bunkers declined one shilling to 24s. @ 25s.

Coal freights from Tyne to Gothenburg were quoted last week at 8s. 6d. and Tyne to Malmo at 10s. The freight market generally is weak.

In some of the districts the terms of the agreement drawn up at the end of the stoppage are proving impracticable, notably in Gloucestershire where the owners say they cannot sell at present prices as other districts are underselling them by 10s. and 12s. per ton, and it is, consequently, impossible to carry out the terms of the agreement.

The dispute in the South Wales area on the question of October wages has spread to include all those districts which drew support from the subsidy. The accounts have recommended a wage of 51.68 per cent of the 1915 standard, while the men claim 112.81 per cent, the difference amounts to about 3s. per day.

Other points in dispute between the South Wales owners, miners and the government have been decided by the arbitrator, Sir William Plender, as follows:

(1) That the South Wales coal owners are responsible for 72.6 per cent of the

miners' wages and not 97.57 per cent as argued by the government.

(2) That October wages will be those of September, less a maximum reduction of 3s. per shift for adults and 1s. 6d. for juniors.

The Welsh coal owners have, for the last few weeks, lowered their prices beyond what is really the economic limit so as to secure as large a portion as possible of the foreign market and also to maintain employment.

Recently the Welsh export trade has declined because foreign buyers cannot cope with the heavy expense caused by the exchanges which so appreciably raise the Welsh f.o.b. price and freights. As a general rule the Welsh owners have preferred to close their pits rather than to continue to face heavy losses.

The only demand which is sustained is for anthracite, and to meet this one concern is developing an extensive new anthracite area in the Neath Valley. Anthracite represents about one-twelfth of the total output of the Welsh coal fields.

The Government has received a proposal to the effect that it would be more economical for the State to provide work in coal-raising for the unemployed miners than to relieve them by means of the Poor Law for doing no work at all. The figures for outdoor relief show that the cost is at the rate of 8s. per ton of coal which would be raised if they were at work, and that their employment on the lines suggested would involve a loss of 6s. per ton; so that by utilizing this scheme 2s. per ton would be saved and coal stocks would be replenished against foreign demands. The proposal will come before the Prime Minister.

Hampton Roads Concentrating Coastwise and Southern Markets

Marked increase in New England business, caused by the prospects of a railroad strike, was the chief development in the Hampton Roads market last week. Freight rates by barge and schooner to the New England States

increased slightly. The price of coal, however, dropped somewhat.

Accumulations at Tide are on the decrease, shippers being unwilling to speculate on the conditions surrounding the strike, fearing a rail tie-up might leave large volumes of coal on demurrage. A slight increase in export business was seen, cargoes moving to the West Indies, South America, and other Southern ports.

Less than 150,000 tons of coal were in cars at the three piers this week, while vessel tonnage awaiting cargo is approximately 40,000. Freight rates to foreign ports remain unchanged, with the exception of a slight decrease to West Italy.

Bunker business is growing, with prospects of still more activity along this line, due to an increase in general shipping, which promises to continue through the winter.

PIER SITUATION

	Week Oct. 20	Ended Oct. 27
N. & W. Piers, Lamberts		
Cars on hand.....	1,286	1,663
Tons on hand.....	68,517	87,268
Tons dumped for week.....	123,301	125,119
Tonnage waiting.....	8,100	13,000
Virginian Ry. Piers, Sewall's		
Cars on hand.....	1,461	925
Tons on hand.....	73,050	46,250
Tons dumped for week.....	75,203	93,888
Tonnage waiting.....	700	24,436
C. & O. Piers, Newport News:		
Cars on hand.....	776	838
Tons on hand.....	38,650	41,900
Tons dumped for week.....	45,444	33,687
Tonnage waiting.....	1,575	3,600

Pier and Bunker Prices, Gross Tons

(Foreign Bunker Quotations by Cable to *Coal Age*)

	Oct. 22	Oct. 29†
PIERS		
Pool 9, New York....	\$5.90@ \$6.10	\$5.90@ \$6.10
Pool 10, New York....	5.65@ 5.80	5.60@ 5.80
Pool 9, Philadelphia..	5.80@ 6.00	5.75@ 5.95
Pool 10, Philadelphia..	5.50@ 5.75	5.50@ 5.75
Pool 71, Philadelphia..	6.00@ 6.25	6.00@ 6.20
Pool 1, Hamp. Rds....	5.15@ 5.25	5.10@ 5.20
Pools 5-6-7 Hamp. Rds.	4.25@ 4.50	4.25@ 4.40
BUNKERS		
Pool 9, New York....	6.25@ 6.35	6.25@ 6.35
Pool 10, New York....	6.00@ 6.15	6.00@ 6.15
Pool 9, Philadelphia..	6.00@ 6.25	6.00@ 6.25
Pool 10, Philadelphia..	5.75@ 6.00	5.75@ 6.00
Pool 71, Baltimore....	5.50@ 6.00	5.50@ 5.80
Pool 1, Hamp Rds....	5.25@ 5.40	5.25@ 5.35
Pool 2, Hamp. Rds....	5.00@ 5.10	5.00@ 5.15
Welsh, Gibraltar....	47s. 6d. f.o.b.	47s. 6d. f.o.b.
Welsh, Rio de Janeiro.	65s. f.o.b.	65s. f.o.b.
Welsh, Lisbon.....	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, La Plata.....	60s. f.o.b.	60s. f.o.b.
Welsh, Madeira.....	52s. 6d. f.a.s.	52s. 6d. f.a.s.
Welsh, Teneriffe....	52s. 6d. f.a.s.	52s. 6d. f.a.s.
Welsh, Genoa.....	55s. t.i.b.	55s. t.i.b.
Durham, Newcastle..	35s. @ 37s.	35s. @ 37s.
Belgian, Antwerp....	110 fr.	110 fr.

C.I.F. Prices, American Coal

(In Gross Tons)

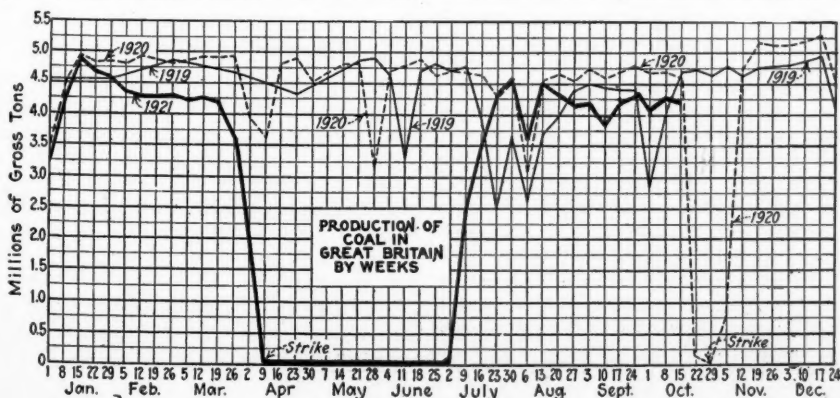
	Oct. 22	Oct. 29†
	Low High Vol. Vol.	Low High Vol. Vol.
French Atlantic.....	\$9.10 \$8.95	\$9.00 \$8.85
West Italy.....	9.40 9.25	8.95 8.70
West Indies.....	7.00 6.80	
The Plate.....	9.90 9.75	9.75 9.60
Rio Janeiro.....	9.40 9.25	9.30 9.20

These quotations are purely nominal and as far as can be learned, no business is being done in these markets.

Current Quotations British Coals f.o.b. Port, Gross Tons

	Oct. 22	Oct. 29†
Cardiff		
Admiralty Large.....	29s. 6d.	28s. @ 29s.
Steam, Smalls.....	19s. 6d.	19s. @ 20s.
Newcastle:		
Best Steams.....	26s. 3d.	24s. @ 25s.
Best Gas.....	25s. 6d.	25s. @ 26s.
Best Bunkers.....	25s. 6d.	24s. @ 25s.

†Advance over previous week shown in heavy type, declines in italics.



Reports From the Market Centers

New England

BOSTON

No Significant Developments—Hampton Roads Coals Continue Active—All-Rail Movement Slightly Increased—Healthy Demand for Domestic Anthracite.

Bituminous—A careful canvass this week fails to disclose any significant change in the general situation. The same shippers are offering the same coals to the same buyers as a week ago, and there is practically no difference in the prices quoted. While coal factors utilized the rail strike possibilities as talking points there was practically no reaction among buyers. Reserves are ample, and even though it would probably take more or less comprehensive buying to advance present prices, yet the larger buyers in particular are coy about making any move that would in the least show anxiety over prospects.

Pocahontas and New River are maintaining their supremacy over all but the relatively small area that may now be considered "safe" for all-rail coal. There is much talk of an impending reduction in rail freights, but most of this is based on mere guessing. Railroad men themselves do not look for any scaling down during the remainder of 1921, but the revised schedules on hay, grain, and certain other commodities have set people talking. Meanwhile, Navy standard coals are being offered at \$4.75 f.o.b. vessel at Norfolk and Newport News, with a liberal concession from that basis for slack. For inland delivery, \$6.25 is still being freely quoted on cars Boston, although there are spasmodic efforts to advance this figure.

On coastwise freights there is also no apparent change. Large sailing vessels and barges are still to be had at 85c., Hampton Roads to Boston, with smaller tonnage in proportion. From New York rates to Boston are still easy on a basis of \$1 flat, while in railway-owned transportation the rate on bituminous from Philadelphia is \$1.10.

Movement all-rail through the Hudson River gateways has been showing a fairly consistent increase in the daily average, taking it week by week, but the bulk of this is due to the railroads themselves who wish to protect their storage at all possible points.

Anthracite—The brisk retail demand is reflected in a more active wholesale market. Most of the companies are well supplied with orders for November; even egg and pea are in mild request.

A few days of colder weather have made a material difference in the outlook. In several cities in New England receipts are considerably less than dur-

ing 1920, and the question whether retailers will be able to keep up with the demand will depend upon temperatures during November and December.

Tidewater—East

NEW YORK

Demand for Anthracite Active—Railroads Buy Steam Coals Heavily—Bituminous Market Quiet—Demand Reacts as Strike Threat Passes.

Anthracite—Domestic demand has been steady. Operators and shippers have no difficulty in moving stove and chestnut but notwithstanding the cooler weather and the temporary rush caused by the threat of the railroad workers there is an over-supply of egg and pea.

New York again showed its adaptability as a weather market. Demand changed as often as the weather, cool winds causing a rush on the retail dealers while warmer temperatures resulted in ordinary business. Coal peddlers are complained of by those consumers who, on account of living in flat houses are compelled to buy their fuel in bushel or 100-lb. lots for which they pay at the rate of \$20 per ton.

Rice is the hardest of the steam coals to move. Buckwheat is fairly active and there is comparatively little surplus around. Barley is a good second.

Bituminous—Conditions are quiet. There is little activity and unless demand gains local shippers expect the piers here will be overstocked. Buying rose and fell in accord with reports and rumors of the threatened railroad strike. It was a case of watchful waiting in many instances.

Large industrial plants and public utilities have stocks sufficient to have carried them over any ordinary emergency. Demand fluctuated during the week, due in great part to weather conditions. There was a big variation in quotations but hardly any change in the final result.

There is a good demand among the line trade and considerable coal is being laid aside. Industries are gradually increasing their working hours, with a consequent increase in fuel consumption.

With the dangers of the rail tie-up over dealers who had a surplus of coal at Tidewater or on the way began making preparations to get rid of it. There is considerable coal here, some of it without any definite orders.

Some mines producing the higher grades are said to be well sold up and are refusing orders on which delivery is stretched out, while others producing fair or inferior grades are not so well

situated. While the general range of mine quotations show comparatively no changes from last week occasional sales have been reported at prices 10@15c. lower.

A few lots of Pool 15 were quoted around \$5.50 f.o.b. piers, with some Pool 11 at the same figure. Quotations for Pittsburgh screened gas ranged \$2.65@2.80 and for Pittsburgh slack \$2.15@2.40.

There are many idle boats in this harbor. Notwithstanding this the boat rate remains firm, averaging 30@40c., according to the size of the bottom.

PHILADELPHIA

Anthracite Demand Eases—Dealers' Prices Not so Firm—Freight Reduction Talk Creates Uncertainty—Bituminous Loses All Show of Activity.

Anthracite—A moderate reaction has set in from the standpoint of the retailer, with the calling off of the rail strike. Some dealers actually report that a few customers canceled orders.

Retailers are convinced that a freight reduction will come shortly and it is curious to note how quickly they have assumed a conservative position as to buying. Many of them say they are anxious to see their stocks reduced. Even if a freight cut does come within a few months the bulk of the coal now in the yards will have been moved out and then some.

The greatest demand is for nut, and the request for stove has toned down until many dealers have about as much as they can carry of this size.

There does not seem to be the strength in retail prices that was evident recently. Some of the larger dealers have been asking \$14.50 for stove and nut, \$14.25 for egg, and \$11.25 for pea. However, competition has grown stronger of late and there are many who are quoting \$14 for egg, stove and nut, and \$10.75 for pea.

The steam coals are not so strong. Buckwheat shows some signs of weakness and spot sales have been made close to \$3 recently. Rice is weak and \$2 has been the price of the light spot sales. Barley is in a good position, although some ordinary coals have been offered at \$1.10@1.25.

Bituminous—Naturally the calling off of the strike has hurt the market and there has been a calming down of the activity which was shown in the past ten days. In many instances dullness was even more pronounced than just before the spurt.

Inquiries have dropped off with a suddenness that is marked and despite redoubled efforts of sales departments little new tonnage is being closed. The general feeling is that the temporary lull will pass quickly and buyers will once more see the necessity of getting more stock ahead to offset rail delays in the winter. The possibility of a freight reduction continues to be a factor and until this situation is definitely cleared will be an impediment to any heavy buying.

For a while during the strike discus-

sion there was a tendency for spot prices to move upward but this has all been lost by this time and quotations are once more back to the level formerly prevailing. In a few instances there is just the slightest movement to even lower figures.

BUFFALO

Bituminous Market Reacts with End of Strike Talk—Prices Slacker—Anthracite Becoming Active—Lake Business Holding.

Bituminous—As a rule shippers report the demand less active than formerly, which means that a generally heavy stock was provided during the strike talk. A local paper publishes a picture of a huge pile of coal held here by a trunk-line road and the inference is that all are similarly supplied.

There was no advance in prices during the time of the threat of a rail tie-up. Certain jobbers now report very low offers, both slack and sizes, which they cannot sell readily at any price.

Prices are weak at \$2.75@3 for Youghiogheny gas lump, \$2.35@2.50 for Pittsburgh and No. 8 steam lump, \$2.25 for Allegheny Valley and all mine run, and \$1.60@1.75 for slack.

Anthracite—Demand is increasing fast. Consumers who hung off with the idea of breaking the prices down have given that up and feel that they must buy or run short. The supply is not good. Complaint is heard from all branches of the trade. As the mining does not drop off it is supposed that the Eastern demand is taking all the surplus. Independent mines are starting up everywhere, but their prices are far from uniform.

Lake—Shipments are no lighter than they were last fall, when a much smaller amount had been shipped to date than now. Loadings for the week ended Oct. 26 were 92,100 net tons, of which 62,100 tons cleared for Duluth and Superior, 21,800 for Chicago and 8,200 for Milwaukee.

Coke—Local byproduct plants are still mostly idle, in spite of the big demand there is for the gas. There is a little more pig iron moving eastward, especially since the barge canal has made such a low seaboard rate on it.

BALTIMORE

End of Strike Threat Finds Trading But Little Stimulated—Prices Still Soft—Hard Coal Situation Improves Slightly.

Bituminous—A public expectation that there would be no railroad strike, reflected in the failure of a rush to buy for storage against future needs, and in the lack of response as to increased price, was apparently entirely warranted. The reaction now that the strike is ended should be rather healthy, as few of the industries have laid in any material supplies and must therefore continue to buy in the open market.

There was of course some increased demand. Added to contracts already on the books and the fact that many mines are still closed down, this emergency buying, even of limited extent, had the effect of nearly selling up the

best coals. This caused a bit more stiffening to such coals as were assigned to Pools 1 and 71 than was the case with the lower grade fuels. Poorer grades still run down all the way to \$1.50.

The export situation is not brisk, although the movement for October now promises to exceed that of September, which was a low water mark for some months previous.

Anthracite—The ordinary conditions of winter approach have undoubtedly been the principal causes of the stiffening of the market, although there is no doubt that the talk of railroad strike did to some extent stimulate retail orders. The run of coal to this city for October is exceeding by about one-third the delivery during September and August when a decided deficiency was piled up.

Baltimore still remains about 120,000 tons short of its normal supply of hard coal at this season, and while the tendency to buy in one- and two-ton lots has been largely increased by general financial stress and has thus prevented an absolute depreciation of yard supplies within the last thirty days, a serious situation will undoubtedly arise should the months of November and December prove very cold.

Northwest

MINNEAPOLIS

Active Buying Wanes as Strike Danger Passes—Prices Steadier—Approach of Cold Weather Will Bolster Market.

Last week saw considerable increased buying, as a step of prudence. But as developments in the rail situation revealed that various crafts would not support the strike, the interest in stocking up for any length of time subsided. Buying has continued to be a little more active, but the nearer approach to cold weather would account for that.

The coal trade has faced an uncertain state of affairs. It has hardly been a wise step to urge buying on account of the possible strike, since so many received statements of the kind as wholly self-serving. Many in the trade have contented themselves with answering questions upon the threatened strike, and letting the buyers draw their own conclusions.

With the passing of the emergency situation the coal business relapses to a weather proposition entirely. There has been a reasonable amount of coal distributed through the interior to serve generally without much trouble until some really cold weather ensues. When that occurs, there will doubtless be the usual rush for more supplies, and complaint from some sections that they must have more coal immediately or there will be suffering.

The stocks of coal on the docks at Duluth and Superior are sufficient to run the Northwest. Because of the greater support to the market, through the threat of a strike, prices on steam coal have been somewhat steadier, and some

of the concessions which have been available have been discontinued. The market is none too strong yet, and now that the strike is seen to be off, the lack of support will doubtless be resumed.

Retail movement is proceeding along narrow lines, a little stimulated by the advance of the season and the prospects for early cold weather. At no time has there been any real congestion of orders.

MILWAUKEE

Market Is Dull — Uncertain Freight Rates Retard Movement—Fires Continue to Force Sales of Screenings.

The coal market continues unsatisfactory to dealers. Demand from both city and country is slow and spasmodic, in response to weather conditions, and because of an expectation, more especially on the part of country consumers, that reduced freight rates will bring lower prices. This holding back for something beneficial to materialize has been the bane of the coal trade here throughout the entire season.

There is bound to be a rush of orders when the present mildness gives way to real winter weather, as consumers as a rule have thus far only provided for immediate needs. Prices are steadily maintained on anthracite and Eastern soft coal, with the exception of screenings, which are being forced on the market on private terms, to save them from being converted into ashes.

Receipts by Lake to the latter part of October are in excess of September's complete record. Hard coal cargoes aggregate 107,323 tons and soft coal 231,158 tons. The season's receipts to date foot up 855,045 tons of anthracite, and 2,271,230 tons of bituminous coal against 679,163 tons of the former, and 1,866,819 tons of the latter in 1920.

DULUTH

Interior Buying Heavier — Docks Nearly Filled — Prices Firm—Surplus Causing Uneasiness.

Shipments from the docks at Duluth-Superior harbor continue to increase. The country dealers are not boosting their orders materially. Public service corporations, however, throughout the state and the Dakotas are filling their bins.

Incoming cargoes continue to hold up and it is freely predicted that October receipts will exceed those of September and August. Coal is not needed to any great extent at the Head-of-the-Lakes now as it is estimated that a surplus of 2,000,000 tons is on the docks of bituminous. In fact, several docks have reached the stage where it is necessary to hold boats to unload.

Twenty-nine cargoes came into port last week of which five were anthracite and thirteen cargoes are reported on the way of which the same number are hard coal. Shipments will soon begin to drop off as the ore boats will virtually stop running at an early date and the only bottoms remaining to handle coal will be those which carry grain on the downward journey.

Prices are remarkably firm. No cut-

ting was done last week and one buyer is reported to have made the round of the market without obtaining a reduction on a large order. Screenings are held at \$4, with only a few damaged lots remaining at a lower figure.

Dock men fear that they may be caught with high priced coal on hand at the beginning of next season as the increased shipments this year and the lack of demand will leave at least 2,000,000 tons on the docks in the spring. It is felt that a reduction in miners' wages or in freight may cut prices to such an extent that dock men will have to take a considerable loss.

Inland West

DETROIT

Market on Even Keel as Strike Talk Dies—Buyers Await Lower Freights—Anthracite Stocks Heavy.

Consumers of steam or domestic bituminous appear to have received the railway workers' strike ultimatum with reservations and a considerable degree of incredulity. Their attitude is seemingly justified by the later developments.

Up to the time of the withdrawal of the strike order by the union leaders, the Detroit buyers had declined to become worried over the prospect of a nation-wide tie-up. It was argued that should the strike become a reality, it would almost certainly develop conditions that would practically assure a lower freight rate on coal shipments. Everyone was quite willing to become a beneficiary of the lower rate, so there was no increase in volume of buying.

Some jobbers and wholesalers even go so far as to assert that the week preceding cancellation of the strike order developed even less business than the dulllest week of midsummer. The apathy of buyers was reflected in the continuance of prices practically unchanged from the level on which they stood preceding announcement of the strike program.

While there is rather a more active demand for domestic sizes from household consumers, their increasing interest is to be ascribed to the fact that temperature conditions encourage buying by those who made no previous provision of winter fuel.

Because of the slowness with which distribution has proceeded, most retail yards are comfortably supplied with anthracite.

COLUMBUS

Market Relapses after Strike Flurry—Domestic Stocking Was Heavy—Steam Coals Weak as Ever—Lake Trade Holding.

Little effect of the threatened railroad strike was noted in the Ohio coal trade during the last week in October. The buying movement of the previous week had subsided to a certain extent and dealers appeared to be in good shape.

Weather conditions were unfavorable to a better domestic demand as the mercury ranged rather high. Retail stocks are slightly larger than usual for the time of the year, due to accumulations made to guard against a suspension of coal movement. Financial conditions are a deterrent to a more active demand. Many householders are unable to pay cash, but dealers are demanding this because of heavy credits they are carrying. Retail prices are generally firm at former levels. Hocking lump retails \$6@6.50 and West Virginia splints \$7.25@7.75. Pocahontas lump is \$9@9.50. Anthracite is firm around \$15.

The steam trade showed little effects of the rail troubles which had been impending. Some buying on the part of public utilities and municipalities was reported. Many manufacturers have reserves which will be adequate for some time. Some railroad buying was reported but this was not sufficient to strengthen the market to any extent.

Production in Ohio fields shows a good gain. The Hocking Valley is producing from 30 to 35 per cent of normal and Pomeroy Bend is doing fully as well. Cambridge and Crooksville are credited with 30 per cent.

Lake trade is still showing some activity and a fair tonnage is moving from lower ports. West Virginia is supplying a large part of this tonnage. Congestion on the upper Lake docks has curtailed a more active movement.

ST. LOUIS

Warm Weather Offset Strike Talk—Domestic Business Easy—Prices Firm.

The warm weather has put a quietus on the growing domestic market.

Business locally is light. Very little steam buying was done in anticipation of a railroad tie-up. A fairly good tonnage is moving through to Western and Northern points, but the country demand is easy on everything.

Mt. Olive and Standard seem to have the lead on such business as is moving. Carterville is slow and there is very little demand for anthracite or smokeless. Coke has slowed up in the last few days.

Cold weather, it is expected, will stimulate the market, but with the calling off of the strike no serious conditions will develop within the next three or four weeks. Prices are unchanged.

CINCINNATI

Market Quiet After Strike Flurry—Slack Sells Off, Other Prices Firm—Wage Cuts Make for Lower Quotations.

Beyond a heavier movement through the Cincinnati gateway there has been little to indicate the strike which was threatened by railway men. The 25c. advance that was made last week on some grades still remains, though slack has dropped back to the old low price under the pressure of domestic production. Some sellers have announced the intention of withdrawing their men from the road until the freight rate reductions can be anticipated.

Considerable interest is manifested in the action of certain Appalachia mines that have arbitrarily reduced wages in spite of agreements held with the unions. This is seen as one of the first movements toward lower levels in prices from that and the southeastern Kentucky fields.

Though there has been a sagging of inquiries for domestic smokeless this failed to bring concessions and last week's prices are holding. Mine run is \$2.25@2.75 and slack is \$1.10 and up. West Virginia slack is fairly firm in spite of the reduction on the part of Kentucky operators, \$1.25@1.50 being the range. Mine run is quoted at \$1.75@1.85; lump at \$3@3.50. Southeastern Kentucky slack is quoted \$1.10@1.25. Mine run ranged \$1.65@1.85 and lump \$3.25@3.50 with choice block still bringing \$3.75.

CHICAGO

Market Flurry Brings Car Shortage—Steam Demand Causes Price Increase—Eastern Domestic Coals Active.

On account of the conditions brought about by the threatened railroad strike, the demand has increased very materially. This has brought about the fact that the car supply question is going to come to the fore in a serious way, perhaps as soon as the cold weather comes. This light flurry experienced during the past ten days, has resulted in a car shortage of no mean proportion, more especially in Indiana. If a ten-day market, based on a probable strike, can bring about a car shortage, what is going to happen when the country really begins to demand coal?

The retail trade has been dissatisfied all summer over the ruling prices on the higher grade domestic coals from southern Illinois. The circular price has been strictly \$4.05 on lump, furnace and small egg. Quotations from other fields have been reduced, but these have been kept steady. This has led to a great many orders being placed for Eastern coal, especially Pocahontas and New River. In short, the retail trade is dissatisfied with the operators in southern Illinois, but this is not based on good grounds.

It was the southern Illinois operators who kept retailers supplied all during the hard times—not only kept them supplied but gave them the coal at a very reasonable price. In fact, the same operators could have sold their product without any difficulty at a price in excess of \$2 to what they asked. Now that the export game is over Eastern operators have come back in the Chicago market and have succeeded in reinstating themselves by price-cutting methods.

The steam market has been active during the last few days. The packers bought enough to make the market firmer than it has been in a long time. Very little mine run has been sold lately, but the price is strengthened 25c.@50c. a ton on account of the strong demand for domestic coals as well as finer steam sizes.

Industries which have been burning

screenings have been able to pick up prepared coals, such as stove, chestnut, pea, etc., at such low prices that they have been burning these sizes, as they, of course, can get much higher efficiency out of the prepared product. Irrespective of this, the prices of the small prepared sizes have been fairly weak.

Eastern coals continue to come in in large volume. Anthracite is moving along very nicely and much smokeless coal is arriving daily. Eastern Kentucky block is beginning to find a market in Chicago and is being sold in greater volume today than ever before.

CLEVELAND

Recall of Strike Order Causes Slump in Demand—Lake Movement Good—Shortage of Cars Appears—Market Outlook Improves.

The recall of the railroad strike order has resulted in an appreciable letting down in the demand for industrial coal in this district. During the last few days before the withdrawal of the threat to tie up transportation and when it began to look as though the unions were determined to go through with their plans, many plants took steps to insure themselves of a few weeks' supply of coal. This increased their stocks above pressing current needs and consequently there will be a lull of buying for a time. Fundamentally the industrial situation continues to improve and the very fact that companies were anxious to have enough coal to keep them going in the event of a strike indicates the existence of orders.

Because of the importance of the steel industry in this district the coal trade is anxiously watching developments there for an indication of the probable coal demand this winter. At the present time the steel industry is averaging more than 50 per cent of capacity operations. Mills producing lighter products are running at a rate which ranges up to 80 per cent. The rail price cut and the prospects of more rail orders will bring up the operations for heavier products. On the whole the outlook in the steel industry is encouraging and this means a substantial consumption of steam coal. Automobile plants are beginning to curtail for the winter, but truck plants are operating well.

Shipments of Lake coal for the season to Oct. 24 aggregated 20,197,103 net tons, compared with 18,549,344 for the same period in 1920; 20,528,813 in 1919; and 25,108,114 in 1918. The retail demand continues fair, although the mild weather has not permitted it to reach its stride as yet. Prices remain unchanged. The return of a symptom familiar to the trade a year ago is seen in a car shortage at the mines.

Bituminous coal receipts at Cleveland for the week ended Oct. 22 were largest since the latter part of January, amounting to 1,655 cars divided: industrial 1,154, retail 501, and representing an increase over the preceding week of 436 cars, divided: industrial 364, retail 72.

South

LOUISVILLE

Eastern Kentucky Grades Firm Up—Industrial Demand Improving—South in Better Shape.

The late season, coupled with some fear of a rail strike, resulted in much better demand last week, and many mines are sold up for the time being on block, which is moving freely to the South. With the cotton ginning and textile plants busy there is also a somewhat better steam movement to the South. Public utilities have been consuming a little more heavily, and industrial demand is showing slow but steady improvement.

The fire brick industry which has been working two days a week for months, has gotten up to four and even six days in some of the Kentucky plants, and the brick and clay industry is more active generally than is normal for this season. Cement mills also report activity.

Some of the Harlan operators report that they have about sold up on block for immediate delivery at around \$4 a ton, most of the movement going to the South.

Southwest

KANSAS CITY

Work Being Resumed Despite Intimidation from Radicals—Prices Unchanged—Conditions Improving.

The threatened railroad strike did not materially affect the demand on the part of the dealer trade. Railroads are and have been taking more liberal supplies, carrying same in cars as well as storing along sidetracks.

Work in the Kansas fields, which has

been tied up by the strike of the Alexander Howat followers in District 14, has been resumed in most of the strip mines and a number of the deep shafts, although intimidation and pressure on the part of the radical element among the old organization has handicapped operations.

Illinois, Oklahoma and Missouri coals are supplying the present demand. Missouri miners are at work as a result of the order of John Fleming, deposed acting president of District 14, who stated that the fight against the industrial court was to be centered in Kansas. Most of the conservative element in the Kansas field are with George L. Peck, provisional president and the international union of United Mine Workers.

Weather conditions have not been such as to stimulate buying and at the same time operators and jobbers have not been in a position to accept any great influx of orders. There are no changes in prices quoted.

West

DENVER

Operators Ask Authorization for Making Wage Reductions—Production Stimulated by Colder Weather.

Colder weather is bringing more orders and a steadier production, but complications involving a wage cut between operators and miners are to be thrashed out in a hearing in Colorado Springs, early in November, that may or may not precipitate a general walk-out.

Colorado's production for September, 862,244 tons, showed an increase of 84,915 tons over the August output of 777,329 tons. Colorado mines have produced 6,602,510 tons since Jan. 1, and during a like period in 1920 the output was 9,038,518 tons.

News From the Coal Fields

Southern Appalachian

CONNELLSVILLE

Frick Coke Production Resumed After Five Months' Interim—Supplies Ample—Furnace Resumptions Probable After Freight Reductions.

The H. C. Frick Coke Co. is blowing in about 1,250 ovens, representing its first coke production in the region since last May. There is no increase in Steel Corporation blast furnace operations sufficient to balance this added production, and the resumption is probably due in large part to distribute some employment to the men.

The blowing in of additional merchant ovens continues, at a slow pace, but perhaps at a slightly greater pace than is warranted by market requirements. At any rate, furnace coke remains somewhat of a drug on the market, evidenced by the fact that prices are practically at cost of production. A little change in the balance in favor of producers sends the market up, as was evidenced a few days ago when a very small buying spurt sent spot furnace coke up about 15c., the market promptly receding afterwards to the old level.

The delay in freight rate reductions is apparently holding back demand, as several merchant furnaces show signs

of wishing to resume, making some stocks of pig iron and liquidating ore, but a decrease in freight rates would write a loss on stocks previously accumulated.

The November settlement price on foundry coke contracts providing monthly adjustment is set at \$4.75, against \$4.50 for October and \$4.25 last summer. The market remains quotable as follows: Spot furnace, \$3.25@3.50; contract furnace, \$3.40@3.50 and spot foundry, \$4.25@4.75.

The *Courier* reports production in the week ended Oct. 22 at 17,900 tons by the furnace ovens and 44,610 tons by the merchant ovens, a total of 62,510 tons, an increase of 5,870 tons.

EASTERN OHIO

Production Best in Year—Trade Optimistic—Lake Business Declines—Prices Firm Up.

Few basic changes were noted in the industrial situation during the week ended Oct. 22. However, the threatened railroad strike caused a spurt in all lines and this was reflected in the production of coal to such an extent that a new high record in the weekly tonnage mined was registered. The field produced 455,000 tons, which is 73 per cent of rated capacity. An even greater volume would have been mined had not an appreciable car shortage developed at the close of the week. Notwithstanding this, the aggregated tonnage represents the peak for the year in weekly output.

The field has produced for the calendar year to date 14,427,000 tons as against a potential capacity of 26,275,000 tons, or 55 per cent of rated capacity. Figures given out by the operators' association indicate that their mines averaged a little less than 60 per cent, and that time lost account "no market" is now under 35 per cent.

The carriers have been amplifying their own fuel reserves. In the Lake trade, the anticipated increase in volume has failed to materialize; stocks of coal on hand with the railroads at lower ports are being reduced and nothing out of the ordinary is expected other than the usual cleaning up before the close of navigation. The Wheeling & Lake Erie and Bessemer & Lake Erie railroads have extended the preferential tariff thirty days beyond Oct. 31, when this cut-back expires on all the other Lake coal-carrying roads, but it is not felt that this extension will in any way stimulate the movement from eastern Ohio mines to the Northwest.

It is conservatively estimated that between 35 and 40 per cent of the coal production in the field is going to carriers for fuel, which volume is not only taking care of their present needs but is also for storage in anticipation of emergency and winter requirements.

There is considerable optimism in coal circles to the effect that industry generally has taken on more momentum, and that industrial sales will be in much larger quantities henceforth. The sudden spurt has caused only a slight stiffening in prices.

UNIONTOWN

Increasing Traffic Is Bringing Car Shortage—Frick Resumption Encouraging—Coal Market Firm.

Increased industrial activity of the past two months has brought signs of a return of car shortage, the major bugaboo of capacity production in the Connellsville coke region when business warrants. The situation has not yet reached serious proportions but both operators and consumers are now giving that matter more attention.

Cars that stood for six or seven months on side tracks and then placed back into active service are breaking down under the strain and it is not unusual for an operator to be notified of a change of equipment after a load of coal or coke has started on its destination.

Railroads are yet accepting all orders for equipment and have succeeded in placing them with difficulty. Operators fear that a return to the car plant rating and percentage placement is not far distant.

The H. C. Frick Co. has fired up many beehive ovens. These are the first ovens the company has operated since the suspension last spring. There were reports at the time that the company intended abandoning beehive coke making and would supply raw coal to byproduct plants of the Steel Corporation. There was never any official statement on the question but the blowing in of the ovens would make it appear an idle report.

The furnace coke market is fairly steady with quotations of \$3.25@3.50. Foundry carries a range of \$4.25@4.75.

UPPER POTOMAC

Contract Shipments Stronger—Spot Orders Negligible—Operations Still Low.

The only signs of operating activity during the week ended Oct. 22 were in Garrett County, Md., and in the Big Vein mines of the Georges Creek region. Spot prices were not sufficiently high to prompt many operators to accept and contracts alone kept mines producing.

CENTRAL PENNSYLVANIA

Unsettled Rail Conditions Strengthen Market—Production Increasing—Car Shortage Appears.

Business fell off slightly after the first flurry last week, but the unsettled rail conditions still have buyers guessing and few are taking a chance on being without fuel in the event of a strike.

Orders are coming from Eastern markets and the bulk of the coal is going to the New England states. The price has stiffened on the better grades 25c. a ton. Pool 10 is selling \$2.40@2.60; Pool 9 has kept pace and as listed \$2.45@2.70. Pool 11 is \$1.85@2, and Pool 1, \$3@3.20.

Operators on the B. and O. have experienced considerable difficulty in getting cars and the situation became acute the latter part of the week. The increase in the market, however, has not brought many of the closed mines

into play, but the larger operations are making practically full time.

Up to and including Oct. 21, total production for the month was 44,071 cars as compared with 37,214 in the corresponding period of September. The total production for October will reach 77,000 cars, an increase of 18 per cent.

ANTHRACITE

Strike Settlement May Ease the Demand—Steam Moving Better—Glen Alden Reopening Delayed.

Production has been stimulated by the demand in anticipation of the threatened railroad strike. It is possible that a slight decrease in output will be the result of the settlement of that trouble.

Steam coals are moving more freely, and prices are well up to the company circular. The re-opening of the Glen Alden operations was postponed until the middle of the week ended Nov. 5.

FAIRMONT AND PANHANDLE

Better Market Tone—Production Stimulated—R.R. Fuel Orders Increase.

FAIRMONT

Production was increased during the week ended Oct. 22, not however, especially as a result of any buying rush because of the impending railroad strike. Such increase was due to a better industrial feeling although prices were not strengthened. There were occasional heavy Tidewater shipments, railroad fuel loadings were good but Lake business was on the wane.

NORTHERN PANHANDLE

Better orders for railroad fuel enabled a production of about 70,000 tons. There was also a heavier domestic demand, but this was offset by the poor call for slack. There were inquiries in circulation for tonnage to April 1 although no actual contracts were closed.

PITTSBURGH

Rail Strike Scare Ended, but Remaining Demand Is Improved—Gas Coal Market Disappointing.

The sharply increased call, noted last week, has not continued in full force, but demand has not reverted entirely back to its former almost insignificant proportions. Part of the recent increase was due to the railroad strike scare in the Buffalo district and Canada, but there remains a slightly heavier line demand.

The steel industry is operating still better, but most of its demand is supplied by the Connellsville and other non-union districts. The steel industry's demand for high grade gas coal, which would necessarily have to be met by the Pittsburgh district, proves smaller than might be expected. Gas coal in the district commands scarcely any margin over steam, all prices being dictated by cost of production, or the amount operators are willing to lose for the sake of maintaining some sort of work time.

The prospect remains that there will be a complete cessation of mining in the union fields April 1. This prospect,

which in some quarters has been expected to stimulate demand in the next few months, appears to have had no influence at all thus far.

Production is in the neighborhood of 30 per cent, but no precise estimate can be made. The output is largely in gas and domestic grades. The market remains quotable as follows: Steam: Slack, \$1.60@1.70; mine run, \$2.10@2.20; 1-in., \$2.60@2.70. Domestic, 1 1/2-in., \$3@3.25. Gas: Slack, \$1.60@1.70; 1-in., \$2.60@2.70; mine run, \$2.10@2.25.

Middle West

SOUTHERN ILLINOIS

Threatened Strike Stimulated Market—Steam Business Slows Down—Prices Sag—Car Shortage Troublesome—Railroad Tonnage Good.

In the Cartersville field the threatened railroad strike helped steam business wonderfully in the last ten days, but domestic has eased up on account of the warm weather. Lump is oversold, but egg and nut is heavy. Prices are holding fairly well.

Railroad tonnage has been unusually good. Steam business, however, is not heavy, but it has moved fairly well. Car shortage is affecting many mines, and at some places operations have been impossible.

Somewhat similar conditions prevail in both the Duquoin and Jackson county fields excepting price, the top of the market there being \$4.05, otherwise prices are somewhat similar to those in Cartersville. Railroad tonnage is good out of this district but the car supply is getting short.

Mt. Olive is running heavy on railroad coal, but the warm weather has eased up shipments of domestic, especially to St. Louis. Movement to the north and west is better. Car shortage is becoming troublesome, but nothing serious so far.

In the Standard field there has been a change all around for the better, but it is largely a day-to-day proposition. At times screenings went up to \$1.25, and within 48 hours went back to 75c., while at this writing they are as low as 50c. This is caused by one jobber who buys for large interests breaking the price by enforcing the market. Railroad buying has been heavy; steam, however, is a little bit slow and moves in spurts.

Warm weather has eased up the demand for domestic, both city and country. Several producers have been idle on account of no cars and there are still a few mines that have never resumed working on account of the realization price being too low.

WESTERN KENTUCKY

Screenings Burden the Market—Better Movement of Prepared Industrial Demand Improves.

Screenings have been a burden the past few days as a result of the heavier production of prepared coal. The industrial improvement has been far short of being sufficient to take up the

slack. Mine run movement as a whole is slow.

Mines are now running two and one-half to three days a week, and better in many instances. Some of the larger companies have run full-time.

Some spot screenings had to be sold as low as 35c., the average for the week being \$1.07. Mine run prices remained fairly firm, and prepared rose as high as \$3.75.

MIDWEST REVIEW

Market Erratic During Strike Uncertainty—Dull Period Ahead—Industrials Improve Slowly—Freight Reduction Prospects a Deterrent Factor.

Midwest coal markets have been very erratic during the past few days. One day the demand for both domestic and steam coals has been fairly good and the next day there would be practically no call at all. The market strengthened or weakened, according to the latest news bulletins on the railroad situation.

It might be said without fear of contradiction, that the Middle West has been buying domestic coal rather heavily during the last ten days. Operators who produce certain favored grades are from ten days to three weeks behind on some sizes. They are, however, expecting a slump in demand, as a result of the negotiations between the railroads and the brotherhood.

The retailers have shown a tendency to buy only on a narrow margin. With reduced freight rates predicted in the near future, it is expected that once the railroad trouble is out of the way there will be practically no demand for domestic coal until freight rates are reduced.

Screenings are holding fairly firm, the better grades bringing anywhere from \$1.50@1.85. This increase over the current price of two or three weeks ago has been caused entirely by the strike agitation. There is no denying it that the strike trouble between the brotherhood and the railroads proved to be a great benefit to the coal industry, as it whipped up the demand for coal so that a better market resulted than any experienced this year.

The industrial situation has shown but little improvement. There are, of course, some lines which are in better shape today than they have been for a long time. For instance, the steel people are enjoying greater running times. The malleable iron industry also seems to have improved to some slight extent. On the other hand, the cement industry is curtailing its activities, as the end of the road building season is almost in sight. As there has been practically no building done on a large scale in the Middle West, the only outlet the cement mills had for their product was with the road builders.

Thanks to the efforts of the press, who have been heralding better conditions, the feeling in the Middle West is very much better than it has been for some time and the outlook is considered fairly hopeful. This improve-

ment, however, is largely a matter of prediction as but little actual benefit has taken place.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Unusual Scramble for Domestic Coal Ceases with End of Strike Talk—Production Hampered by Car Shortage.

After a rush for available coal, especially domestic, for shipment before the date set for the strike, the market is at a standstill, so far as new business is concerned. Most of the mines are loaded with orders and neither producers nor buyers are willing to set a price for November.

Car shortage slowed up shipments considerably in the last half of the month. On three or four days mines have had no cars at all and they have also been held down to old car ratings.

Middle Appalachian

HIGH-VOLATILE FIELDS

Rail Trouble Brings Few Coal Orders—Domestic in Good Demand—Car Shortage Appears—Lake Tonnage Dwindles.

KANAWHA

The production rate was unchanged during the week ended Oct. 22, or about 16,000 tons daily. In general, however, there was no extra demand as a result of the railroad situation. Slack was a great drawback to the preparation of lump coal, it being necessary in many instances, to sacrifice it whenever orders for prepared sizes were accepted.

LOGAN AND THACKER

Logan mines, were producing at the rate of about 50,000 tons daily, some of the additional tonnage being for the railroads. Substantial movement to the Lake and to Detroit and other Michigan markets aided production and there was a fairly active domestic demand.

Williamson mines were not producing more than 40 per cent of normal, "no market" losses amounting to 140,000 tons. Lack of an adequate car supply was causing some loss, but it was not material. The greater part of the output went to Western markets.

VIRGINIA

A prospective tie-up of transportation failed to alter conditions much and the production rate remained unchanged. Contract coal continued to furnish the bulk of the output and idleness was still very general. The only favorable development was the slightly increased domestic demand.

NORTHEASTERN KENTUCKY

There was a continued strengthening in the domestic demand, but as there was no accompanying improvement in the steam market, slack was almost unsalable. Much of the lump product continued to move to Lake points.

LOW-VOLATILE FIELDS

Production Increases, Especially in Pocahontas Field—Western Markets Active—Slack Sacrificed.

NEW RIVER AND THE GULF

New River production was only slightly heavier in anticipation of a possible rail tie-up, the increase not amounting to more than 5,000 tons daily. There was still a dearth of orders, about the only business being for egg and lump. In order to dispose of the accumulation of slack, some of that coal was sold down to \$1.15. Tidewater business was negligible.

Gulf production was only slightly bolstered by the threatened railroad strike. The poor demand for slack stood in the way of a larger output. With the end of the Lake season in sight, it was generally anticipated that

there would be a slump in mine operations early in November.

POCAHONTAS AND TUG RIVER

In sharp contrast to conditions prevailing in a great many other fields, a regular deluge of orders poured into the Pocahontas region during the week ended Oct. 22. The large production was made possible, notwithstanding a poor Tidewater demand, by the better spot market in the West. Prices, however, still failed to show much stimulation.

In the Tug River region, there was a larger production due in part to better takings by steel companies and to the threat of a railroad strike. In general, however, it was contract shipments and tonnage to associate companies which sustained production. Prices were not fluctuating to any extent.

West**UTAH**

Better Buying Only Temporary—Prospect of Rail Trouble Fails to Bolster Market.

The warm weather has been counteracted to some extent by the threatened railroad strike. The news of the railroad trouble caused many people to make for the coal dealer, but the activity lasted only one or two days and things are getting rather quiet.

The price situation seems to be steady. Coal is not expected to go up unless there is an abnormal demand for the larger sizes. With industrial activity far below normal, producers are experiencing considerable difficulty in the marketing of slack.

News Items From Field and Trade

COLORADO

The Santa Fe, according to unofficial report, will purchase the properties of the **Yankee Fuel Co.**, the **New Mexico Coal Co.**, and the **Superior Coal Co.**, sold by Federal Judge Robert E. Lewis, in Denver. Mines owned and controlled by these three coal companies were sold at public auction for \$150,000, to satisfy certain claims. The purchaser was the chairman of the bondholders' protective committee. According to the foreclosure application, which was filed in behalf of Trowbridge, Callaway and Robert Lawrence, the Yankee company and its associated interests issued bonds in the amount of \$2,500,000 several years ago. The mortgage was secured on the property and the company's mines. The coal mining company subsequently defaulted. The properties are located in southern Colorado and northern New Mexico.

ILLINOIS

Announcement has been made by the **Eagle Coal Co.** of Kewanee, of the opening of a new mine at that place.

The strip mine operated at Duquoin by the **Scott-Smith Coal Co.**, of St. Louis, has again been put into operation after being idle nearly all summer.

The Sixteenth Annual Convention of the Associated Business Papers, Inc., was held on Oct. 24, 25 and 26, at the Congress Hotel, Chicago. The central theme of the convention was to speed the revival of business. At the election of officers, **James H. McGraw**, president of the McGraw-Hill Co., Inc., New York City, was made the president of the association.

INDIANA

Coal mining activities in the Petersburg field have taken a spurt and three mines have recently opened, including one new plant. The E. I. & T. H. Ry. has completed a switch to the Summerville Mine, south of Oakland City, which in the near future will be one of the largest producers in the field. A new stripping mine has been opened near Oakland City, known as the Enos Mine, giving employment to 100 men. Ingle Mine No. 7, disabled recently when a generator blew up, has resumed work.

KENTUCKY

A petition in bankruptcy has been entered in the United States Court at Covington against **Lee Congleton & Sons** as a firm and Lee, Claude and E. W. Congleton as individuals. The firm formerly was in the railway contracting business but within the past few years has developed several mines in the Jellico and Hazard districts. The petition shows a schedule of assets of \$531,000 and liabilities of \$1,127,000.

The **Amburgy Coal Co.**, operating mines in the eastern Kentucky field, has filed

amended articles, increasing its capital stock to \$175,000.

Suit has been filed in the United States Court at Covington by T. H. Morris, trustee, against the **Liberty Coal Corporation** of Floyd, seeking to have a receiver appointed. The petition alleges that the corporation failed to make first payment of \$50,000 on a note for \$1,000,000.

At a recent meeting of the Kentucky Mining Institute at Lexington, the following officers were elected for the ensuing year: President, **A. G. Spillman**, Earlington, superintendent of the St. Bernard Coal Co.; vice-presidents, **T. E. Jenkins**, Sturgis; **W. G. Duncan, Jr.**, Greenville; **C. S. Nunn**, Marion; **Lawson Blankinsopp**, Lexington; **C. W. Connor**, Escow; **D. A. MacWhirter**, Pineville; **Joseph Cain**, Stearns; **William S. Leekie**, Alex; **H. S. Carpenter**, Jenkins; **R. A. Hamilton**, Mansfield, Ohio; **H. A. Bullock**, Hazard, and **J. E. Jones**, Beattyville, and secretary-treasurer, **Mrs. Elizabeth C. Rogers**, Lexington.

MARYLAND

Mines in Garrett County or a number of them have found it possible to resume operations after a long idleness. The **West Bethlehem Co.**, with a plant at Bayard on the Western Maryland is getting in shape to operate again. It has also been possible to resume operations at the plant of **John W. McCullough** at Friendsville, also in the Garrett County field. There was also a resumption of operation of the **Turner Douglas Co.** The **Manor Coal Co.** at Vindex is on a full-time basis.

Coal Land will be developed by the **Towanda Coal Mining Co.**, chartered by Paul B. Jennings, Eugene S. Williams and Walter J. L. Smith, the capitalization being \$1,000,000.

NEW YORK

S. D. Brady, president of the Brady Coal Corporation of Fairmont was a business visitor in New York recently.

The Pulverized Fuel Department of the **Quigley Furnace Specialties Co.** has been acquired by the **Hardinge Co.**, 120 Broadway, New York City.

The **Powdered Coal Engineering & Equipment Co.** moved the offices and manufacturing plant from Chicago to Buffalo on Nov. 1. **H. B. Pruden** has been elected as chairman of the board and **J. W. Lansing** of Buffalo has been elected president. The new board of directors is as follows: **J. W. Lansing**, Fenton; **M. Parke**, J. E. Finley, Harry R. Wait, J. C. Trefts, H. B. Pruden, B. W. Wistar, W. M. Faber and Stephen T. Lockwood.

Thomas J. Freeman, managing director of the St. George's Coal Field, Ltd., of St. Johns, N. F., has been visiting New York

on his way back from England. He is seeking capital for the operation of the mines near St. George's Bay.

OHIO

The **Southern Ohio Coal Exchange** points out that the people of Ohio have saved \$1,500,000 because of the agitation against freight rate advances which has been carried on by that organization before both the Ohio Utilities Commission and the Interstate Commerce Commission. At the recent hearing before a special examiner of the I. C. C., the railroads sought to get the 40 per cent advance to maintain the differential between Ohio and West Virginia coal. By holding up this increase the saving above mentioned has been made.

H. D. Everett, trading as the **Western Coal Co.**, in reply to the cross petition of the **Emmons Coal Mining Co.**, seeks to have the counterclaim of the Emmons company for \$20,500 for alleged breach of contract, dismissed in an application before Judge John Weld Peck in the United States District Court in Cincinnati. He denies that he breached the contract in any way.

The final event of the second annual golf tournament of Cleveland coal men was held at the Shaker Heights Country Club, Oct. 11, and the championship was carried away by the team of which **Joseph Mitchell** of the **M. A. Hanna Co.** was captain, and consisting of Messrs. Mitchell, **S. B. Coolidge**, of the **Clarkson Coal Co.**, **H. L. Findlay** of the **Y. & O. Coal Co.**, and **Frank Armstrong** of the **Pickands-Mather Co.** The championship honor for the season was won by **George Enos** of the **George Enos Coal Co.**

The event was followed by a dinner at the Shaker Heights Country Club, at which **A. A. Augustus**, president of the **Cambridge Collieries Co.**, acted as toastmaster. **D. Frederick Hurd**, secretary of the **Pittsburgh Veln Operators' Association**, as official handicapper and manager of events throughout the season, was accorded a vote of appreciation for the success of the tournament.

Failure to account and pay for coal under a contract to receive the output of three mines, is alleged by the **Hildesley Coal Co.** in a suit for \$75,000 damages, filed in Common Pleas Court at Cincinnati, against the **Export Coal and Mining Co.** and the **National Surety Company**. The plaintiff says the surety company signed the Export company's bond for \$75,000 for faithful performance of the contract.

The **Massillon-Tuscarawas Coal Co.** of Cleveland, has contracted with **Roberts and Schaefer Co.** for equipment for the new tippie at New Cumberland. This machinery will consist of horizontal screens and loading booms, together with refuse disposal machinery.

On Henry Ford's arrival in Cincinnati from an inspection trip in Harlan County, Ky., press reports announce that he contemplates the purchase of the **Cincinnati, Dayton and Toledo Traction Line**, between Cincinnati and Dayton, as a link to the **Detroit, Toledo and Ironton R. R.** he recently bought. The D., T. & I. has a connection into Dayton, and touches Springfield. Ford and his son Edsel, with three officials from the Detroit factory, inspected terminal sites to the traction line in Cincinnati.

William B. Coddington, who had charge of the Central Fuel Co.'s New York office until a couple of months ago is now connected with the Hutchinson Coal Co.'s Cincinnati office. Samuel McLaughlin Jr., who has been connected with the latter company for some time past, has gone with the Cincinnati office of the Central Fuel Co.

PENNSYLVANIA

D. F. Williams, general sales agent for the Hudson Coal Co., with headquarters in Scranton, has been appointed a member of the Commission on Fisheries of the State of Pennsylvania.

Edward F. Berwind, of Berwind-White Coal Co., has gone to Europe for a brief vacation.

The J. S. Wentz Coal Co. is speeding up production at the new slope of the Upper Lehigh colliery. Three shifts of men are at work.

The Superior Coal Co., which recently resumed operations after a short idleness, has again closed down. This plant is owned by the Whyel interests of Uniontown.

The Iron Trade Products Co. has been appointed sales agent of the Snyder coal mine at Markleton, Somerset County.

The Allegheny Pittsburgh Coal Co. is selling an issue of \$1,500,000 guaranteed mortgage twenty-year 8 per cent sinking fund gold bonds, with the interest and principal guaranteed by the West Penn Power Co. The issue is a first mortgage lien on all the land, equipment and all other property now owned or acquired. The West Penn Power Co. has a large coal contract with the Allegheny Pittsburgh Coal Co.

Ed Miller, of Wendel, has resigned his position as superintendent of Edna Nos. 1 and 2 mines, in Westmoreland County, of the Hillman Coal & Coke Co., and has accepted a similar position with the Ocean Coal Co., a subsidiary of the Berwind Coal Mining Co. His headquarters are at Herman, Pa.

Edward F. McGlynn, superintendent of the Marvine mine of the Hudson Coal Co. has been promoted to the Scranton offices as general colliery superintendent. Samuel Oakley, superintendent of the Greenwood mine, succeeds him.

The Big Four Coal Mining Co., has been organized at Altoona, capital \$200,000. Michael J. Kelly, Curwensville, with James Redding, Altoona and Lawrence Redding, Snow Shoe, incorporated the company.

The Philadelphia and Reading Coal and Iron Co. has begun a policy of suspending its 1,000 employees at its Pottsville repair shops two days each week. The order is attributed to a general economizing policy, but in view of a possible strike next April, all the collieries of that company are working full time, even if it is necessary to store the coal.

A charter has been issued to the Dolbois Coal Co., of Smock. It has a capitalization of \$50,000 and Alva L. Gilleland Browns-ville, is treasurer. The purpose of the company is to mine, buy, sell coal and manufacture and sell coke. The incorporators are Dr. Edward H. Rebok, Waltersburg; Alva L. Gilleland and Joseph Woodward, Uniontown.

The Fairlamb Co., of Philadelphia, has been chartered to buy, sell and deal in coal, coke and other products, capital stock, \$125,000. The treasurer is John F. T. Lewis, Broomall, who is also one of the incorporators with George D. and J. B. Van Sciver, Philadelphia.

The Richland Fuel Co., is being organized by August P. Franks and Louis N. Peterson, to operate coal properties in the vicinity of Pittsburgh. W. H. Pratt, Pittsburgh, represents the company.

The Penova Coal Co., has arranged for an increase in capital from \$100,000 to \$1,000,000, for proposed expansion.

A total of 551,100 tons of river coal, having a value of \$844,700, was reclaimed from the river and streams of Pennsylvania passing through the hard coal fields in 1920, according to summary of the river coal industry made public by the secretary of internal affairs, James F. Woodward.

D. S. Watkins, after serving twenty-nine years in an official capacity with the Buffalo, Rochester and Pittsburgh, has resigned. Mr. Watkins for the past fifteen years has been engineer of construction with headquarters at Du Bois, and was in charge of the extensive developments of his company in the Indiana County coal fields. He has not announced his future plans.

TENNESSEE

The Commercial Coal & Coke Co., at Pikeville, has purchased the property near Pikeville which was formerly owned and operated by the Sequatchie Coal & Coke Co., and is reconstructing the railroad three miles out of Pikeville, from the present terminus of the Pikeville branch of the N. C. & St. L. R.R. to its new operation. The company is reopening the old mine formerly operated by the Sequatchie company.

UTAH

Organization of the Great Western Coal Mines Co. has been completed, and preparations made for the beginning of work as soon as possible in the construction of railroad lines from the company's new townsite to its coal veins. Incorporators are George Storrs, president, Joseph S. Welch, vice president, C. M. Croft, secretary, R. L. Bird, treasurer and three other directors. It is said that the company does not plan to sell any stock, but a bond issue of approximately \$600,000 is probable a little later. The property is at Gordon Creek, near Helper and comprises about 4,500 acres of ranch and coal lands. The new town will be called Great Western and lots aggregating \$50,000 have already been sold, principally to miners.

The Ucolo mine belonging to Rasmussen Bros., in the San Juan region has just been opened. The coal is of an excellent burning quality and of fine grade.

H. F. Fernstrom, manager of the Bamberger Coal Co. in Salt Lake City, has succeeded C. H. Fischer, manager of the Western Fuel Co., the retail department of the United States Fuel Co. The latter has retired owing to ill health. Mr. Fernstrom will be succeeded at the Bamberger by C. C. Davis, cashier.

Articles of incorporation of the Mutual Fuel Co. of Logan have been filed. The company is a subsidiary of the Mutual Coal Co. of Salt Lake City, a new co-operative concern.

The U. S. Fuel Co. has completed a road from west of Hiawatha to the top of Gentry Mountain for timber purposes. This company has bought about 40,000 props from the Mantle forest reserve for use at its Carbon County mines.

WASHINGTON, D. C.

C. E. Dobbin of the Geological Survey has returned to Washington from Montana where he examined land in Garfield County for coal classification.

As friends of the court, Wm. J. Matthews and Hugh J. Martin have filed a brief in the Supreme Court upholding open price associations. They declare that market news is the basis of commerce, and point out that men do not start out blindly with colliers loaded with coal for a port but study trade conditions before every business venture. They quote Judge Sanborn in the Union Pacific Coal Co. case as saying that the Government must prove guilt in cases under the anti-trust law.

The point whether a shipper is liable in damages for failure to furnish a full cargo of coal has been presented to the Supreme Court for decision in the case of the Guayaquil and Quito R. R. vs. the New York and Cuba Mail Steamship Co. The carrier contracted to carry 2,500 tons of coal for the shipper from Hampton Roads to Guayaquil but was not ready to load, because of which breach of contract was alleged. Some of the coal was delivered to another carrier and when loading was accomplished there were 306 tons short.

WEST VIRGINIA

Several coal concerns increased their capital stock during the latter part of September. They were the Canyon Coal and Coke Co., of Uniontown, which operates in this state, the capital being increased from \$500,000 to \$750,000. The Kelly Creek Colliery Co., having general offices in Cleveland, increased its capital stock from \$1,400,000 to \$1,900,000. This company has a large plant on Kelly's creek in the Kanawha field.

Robert Grant, of Boston, head of the New England Fuel & Transportation Co., spent a few days in the Fairmont region recently.

Among recent visitors at Wheeling was Thomas W. Arnette, president of the Antler Coal Co. of Fairmont.

Floyd S. Patton, of the Patton Coal Co. of Fairmont has returned from a visit to the Baltimore market.

Among those named by Governor E. F. Morgan as delegates to the Twenty-Fourth Annual Conference of the American Mining Congress in Chicago to represent West Virginia, has been George Wolfe, the secretary of the Winding Gulf Operators' Association.

Hereafter the Stottlemeyer Coal Co. will supply engine fuel to the B. & O., this company operating on the Charleston Division of that road, its plant being at Graves. In order to supply fuel to the railroad, it has been necessary for the company to build a coaling station.

The Greenbrier Smokeless Coal Co. has begun production in the Greenbrier field, the newest smokeless field in West Virginia. Quinwood is becoming the center of activities of the new field where in the last year or so more than \$5,000,000 has been expended in railroad construction work and in the development of mining property.

After undergoing a severe operation not long ago, John W. Smith, superintendent of the Ingram Branch Coal Co., is well on the road to recovery.

A lease on 200 acres of coal land on Campbell's Creek from W. D. Lewis to A. W. Allen was recorded recently. The land lies on Sawmill and Pointlick branches of Campbell's Creek. The contract gives the right to manufacture coke and other by-products as well as to mine coal.

An improvement is being made at the Itmann plant of the Pocahontas Fuel Co. Excavations are being made for a washery. The Itmann property was opened up about the time the war broke out but was discontinued for a time. During the period of a strong market, operations were resumed at this place, which has become one of the important properties of the company in the Wyoming field.

In preparation for the time when it may not be possible to secure an adequate car supply, the Gulf Smokeless Coal Co. has under construction a storage bin adjoining the tipple of the plant at Tams. Construction work is about completed and the company will be able to use it within the near future.

C. C. Cooke has been succeeded by E. A. Starling as superintendent of the Guyan Mining Co., operating on the Guyan River in the Logan County field.

The Elk Coal Co. has decided to discontinue its office at Charleston and to take care of all business originating in West Virginia through its Columbus office. The Charleston office was under the direction of Harold P. Tompkins, who left recently for France.

BRITISH COLUMBIA

The Spokane & Alberta Coal and Coke Co. has been financed by Middle Western bankers and will expend approximately \$500,000 in completing the purchase of its property in the Crows' Nest district and in the next year's development of the company's holdings. Surveys are being made for a railroad from the mine to the company's townsite, five miles distant on the railroad, near Crows' Nest.

NOVA SCOTIA

The Little River Coal Mining Co., Ltd., has been organized with a capital of \$2,500,000 by H. Ollerhead and H. Bruce, of Sydney and several prominent Newfoundland capitalists, to mine coal areas located at Codroy in the St. Georges district on the west coast of Newfoundland. Diamond drilling will be commenced at once. Seams have been located near the seashore, the outcroppings of which resemble those of the Sydney coal fields.

Good progress has been made in the development of No. 7 colliery, the newest of the Nova Scotia Steel & Coal Co.'s mines. The work was started in September, 1920, and the mine is now yielding an average daily output of 400 tons.

ONTARIO

An analysis of the coal situation in the Western Provinces of Canada by F. E. Harrison, an official of the Federal Department of Labor, indicates the danger of a serious shortage during the winter. The requirements of domestic coal in Manitoba, Saskatchewan and Alberta are estimated as approximately 3,000,000 tons yearly. The amount of coal actually sold up to Oct. 1, however, was only 1,700,000 tons, owing to the withholdings of orders by consumers and dealers in the hope of a reduction in prices.

Traffic News

In the case before the I. C. C. involving the routing of coal from Western Maryland Ry. mines to Eastern destinations, brief has been filed asking that coal moving from the Western Maryland for B. & O. delivery east of Cherry Run, be interchanged with the B. & O. at Cherry Run, W. Va., instead of Cumberland, Md.

The commission will conduct hearings in the case involving reduced rates on coal to Kansas City, Mo., at Kansas City, Nov. 26.

The Pratt Engineering and Machine Co. of Atlanta complains against unreasonable rates on bulk coke from Tupelo, Miss., to Atlanta.

In the complaint of the **M. E. Case Coal Co.**, involving rates on bituminous coal from La. Marsh, Ill., to Galesburg, Ill., the Eighth District Coal Operators' Association has been authorized to intervene.

Application for a loan of \$800,000 has been made to the I. C. C. by the **Kansas, Oklahoma & Gulf R. R.** The company said it would apply the loan on the purchase of 500 steel coal cars.

Examiner G. D. Quevedo of Washington, took testimony in Milwaukee recently in the case of the **Milwaukee Western Fuel Co.** against the Director General of Railroads. The company alleges that it was charged excessive rates on shipments of coal from points on the Ashtabula Coal and Iron Ry. to docks at Toledo. Other railroads involved are the Hocking, Baltimore & Ohio, and Chesapeake & Ohio.

The hearing to be held by the I. C. C. at Chicago Oct. 24 in the complaint of the **Morton Salt Co.**, involving rates on coal from West Virginia mines to Lake ports for trans-shipment by vessel beyond has been canceled. The refund of 28c. per ton recently authorized by the commission on Lake cargo coal expired Oct. 31, and some carriers have filed tariffs continuing this allowance for thirty days.

The Milwaukee Association of Commerce has complained to the commission against unreasonable rates on hard and soft coal from Duluth and Superior, and request non-discriminatory rates from Milwaukee.

There has been a general reduction in freight charges on coke from the Lake Superior docks to South Dakota points, of from 10 to 15 per cent.

The I. C. C. has suspended until Feb. 12 the proposal of the **Union Pacific System** to reduce rates on coal from mines in Wyoming to stations in Utah to the rates existing before the rate advance of Aug. 26, 1920.

The case concerning routing of coal from Western Maryland Ry. mines to Eastern destinations will be heard in oral arguments before the commission at Washington, Nov. 16.

In the complaint of the Commerce Club of St. Joseph, Mo., the commission has authorized the **Southwestern Interstate Coal Operators' Association** to intervene. This case relates to rates on coal from points in Illinois to St. Joseph.

In the complaint of the **Riverside Coal Co.**, an I. C. C. examiner recommends that rates on bituminous coal from mines on the Ohio and Kentucky Ry. near Ohio and Kentucky Junction, Ky., to Cincinnati, and points in central and western trunk line territories be held unreasonable.

Hearing on coal rates from Wyoming mines to stations in Utah will be held by the commission at Salt Lake, Nov. 21.

The Salkeld Coal Co., of Pittsburgh, complains against unreasonable rates on bituminous coal from mines at Bulger, Pa., to Walford, Pa., reconsigned to Warren, Ohio.

The State Railroad Commission has ordered rates on coal from Milwaukee to Janesville, Madison and other southern Wisconsin cities reduced 9½c. per ton.

The Silver Grove yards of the Chesapeake & Ohio, just outside of Cincinnati on the Kentucky side of the river, are to be changed in name to "Stevens." This is in honor of the late George W. Stevens, who conceived the idea of these terminals and where thousands of cars of coal have been held for delivery in times of stress during the war.

The Kellogg Toasted Corn Flake Co., of Battle Creek, Mich., complains against unreasonable rates on soft coal from the

Ohio fields and from the inner and outer crescent fields to Battle Creek.

In the complaint of **J. J. Stehley** the commission decides that the rate on lignite coal from Stanton, N. D., to Hecla, S. D., is unreasonable.

The efforts of the U. P. R.R. to reduce rates on coal between Wyoming mines and Utah cities to the level maintained prior to the general rate increase of last year, have been nullified by the Interstate Commerce Commission. The change is suspended till Feb. 12, 1922. The suspension is believed to be due to the protests made by Utah coal operators, who declared that the reduction proposed would be discriminatory.

The commission has suspended until Feb. 22, 1922, railroad schedules proposing a reduction of 28½c. per ton on bituminous coal, lump and slack, from mines on lines of the Chicago & Alton, Kansas City Southern, Missouri Pacific, Missouri Kansas & Texas and St. Louis San Francisco railroads in Kansas, Missouri, Arkansas, and Oklahoma and on slack from Springfield, Ill., to Kansas City, Kans., Kansas City, Mo., and contiguous points.

In the complaint of the **Merchants Coal & Coke Co.**, the commission decides that rates on lump coal from Eldon Mine and Cantine, Ill., to Rose Hill, Ill., and from Cantine to Jefferson Park, Ill., during Federal control were not unreasonable.

In the complaint of the **Illinois Coal Traffic Bureau**, involving rates on coal from mines in the Fulton-Peoria, northern Illinois, Danville, Centralia, Duquoin and southern Illinois groups in Illinois to Council Bluffs, Ia., Omaha, Nebr., and South Omaha, the commission has authorized the **Eighth District Coal Operators' Association**, and the **Southwestern Interstate Coal Operators' Association** to intervene.

Association Activities

National Retail Coal Merchants' Association

Directors of the association, meeting at Indianapolis recently, approved a report of their statistical committee adopting two uniform accounting systems, to be known as the simplified system and the complete system. These systems are suggested for the use of retail coal dealers, that data may be uniformly compiled for government information and public education. The next meeting of the board of directors will be in February, either at Boston or Philadelphia, the city to be determined by the board.

The directors also considered traffic problems, and formulated plans for an endeavor to remove the inequalities of freight rates. Another section planned a publicity campaign, to take the form of educational matter in the reading columns of newspapers and trade publications. The object of this campaign is to avoid coal shortage this winter.

Smokeless Coal Operators' Association of West Virginia

At the October meeting of the association, held in New York, with Second Vice-President O. M. Dyerlie of Bluefield in the chair, the association declined the offer of Chairman Lasker of the Shipping Board for the use of Shipping Board boats at \$1 a year because after investigating the question of costs, it was obvious to the association that the boats could not be operated in competition with vessels of foreign registry. Investigation disclosed the fact that the operating cost would be 25 per cent greater than foreign manned ships. It was decided, however, at the meeting, to lay all the facts in connection with the foreign shipping of coal before Secretary Hoover of the Department of Commerce.

It was found necessary to create a special committee of twelve for the purpose of making a last stand in securing a reduction of railroad rates on coal for export, this committee being named to interview the presidents of the three Tidewater roads from West Virginia. Vice-presidents of these roads have declined to act favorably upon a request made by an association committee for a reduction in the rate. On the committee are five from the Norfolk & Western territory, five from the Chesapeake & Ohio and two from the Virginian, all being coal producers actively engaged on those lines.

Recent Patents

Means for Operating Reciprocating Conveyers or Screens. Richard S. Jacobsen, Chicago, Ill., assignor to Jacobsen & Schraeder, Inc., Chicago, Ill., 1,386,505. Aug. 2, 1921. Filed Sept. 11, 1916; serial No. 119,554.

Coal-Mining Machine. Thomas Donohoe, Edgewood, Pa., 1,387,886. Aug. 16, 1921. Filed Oct. 18, 1915; serial No. 56,372.

Feed Regulator for Powdered Coal. Hanson Thomas and John Dahlstrom, Pittsburgh, Pa., 1,388,129. Aug. 16, 1921. Filed Sept. 12, 1919; serial No. 323,381.

Feed Regulator for Powdered Fuel. Wm. P. Keyser and John A. Moore, Richland district, West Va., 1,388,185. Aug. 23, 1921. Filed June 10, 1919; serial No. 303,074.

Rock Drill. Omar E. Clark, Denver, Colo., assignor to The Denver Rock Drill Mfg. Co., Denver, Colo., 1,388,406. Aug. 23, 1921. Filed July 19, 1918; serial No. 245,696.

Automatic Trapdoor for Mines. W. W. Wingo, Wilburton, Okla., 1,388,681. Aug. 23, 1921. Filed May 14, 1920; serial No. 381,351.

Steel Mine-Rail Tie. Patrick J. Murphy, Dubois, Pa., 1,389,066. Aug. 30, 1921. Filed Dec. 27, 1920; serial No. 433,193.

Mining Locomotive. Wm. W. Sloane, Chicago, Ill., assignor to Goodman Mfg. Co., Chicago, Ill., 1,389,076. Aug. 30, 1921. Filed Nov. 25, 1918; serial No. 263,997.

Obituary

After having been missing several days, **James Bott**, wholesale coal broker, aged 80, was found dead in his apartment in Allentown, Pa. He was treasurer of the Livingston Club, and 50 years a prominent figure in the social life of Allentown.

George E. Burbidge, president and general manager of the Burbidge Coal Co., Salt Lake City, Utah, died recently after a year's illness. Mr. Burbidge was 52 years of age.

C. P. Willoughby, representative in eastern and central Kentucky for the Atlas Coal and Coke Co., Chicago, died suddenly from acute indigestion in Lexington, Ky. Mr. Willoughby owned a coal yard also at Richmond, Ky.

Samuel T. Peters, of Williams & Peters, wholesale coal dealers at 1 Broadway, New York City, died recently at his home in Islip, Long Island, aged sixty-seven years. He had been in the coal business for more than thirty-five years. Mr. Peters was a director in many coal companies and banks and was a member of several clubs.

The death of **Sir William Garforth, L.L.D.**, is a loss to the British coal industry. He was well known to engineers and coal owners throughout the Continent for his great knowledge of all branches of mining, his systematic application of science to the industry and his successful experiments to insure underground safety.

Coming Meetings

The National Industrial Traffic League will hold its annual meeting Nov. 9 and 10 at the Sherman Hotel, Chicago, Ill. Executive secretary L. H. Beek, Conway Building, Chicago, Ill.

The Coal Mining Institute of America will hold its annual meeting at Pittsburgh, Pa., Dec. 7, 8 and 9. Secretary H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

American Gas Association. Annual convention Nov. 7 to 12 at Congress and Auditorium Hotels, Chicago, Ill. Secretary, O. H. Fogg, 130 E. 15th St., New York City.

The Illinois Mining Institute will hold its fall meeting in the City Hall, Springfield, Ill., Saturday, Nov. 19. Secretary Martin Bolt, Springfield, Ill.

American Society of Mechanical Engineers will hold its annual meeting Dec. 5-9 at the Engineering Societies' Building, 29 West 39th Street, New York City. Secretary Calvin W. Rice, 29 West 39th Street, New York City.